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AMERICAN FORESTS

VOLUME 50 NOVEMBER, 1944 NUMBER 11

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THE COVER

First Army Doughboys Invade Germany's Aachen Forest
Photograph by Daniel Grossi, of the Press Association, Inc.

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American Forests

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THE
AMERICAN FORESTRY
ASSOCIATION

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The American Forestry Association, founded in 1875, is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute permanently to the welfare of the nation and its people.

In addition to publication of its magazine—AMERICAN FORESTS—designed to keep before the people of the country important conservation questions and issues, the Association carries on educational work in various fields including forest fire prevention, reforestation, protection of wildlife, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, advancement of forestry by private endeavor, the teaching of conservation in schools and the promotion of research in timber growing and forest utilization.

The Association is independent and non-commercial, and has no connection with any federal or state governments. Its resources and income are devoted to the advancement of conservation in the interests of public welfare, and all citizens are welcomed to membership.

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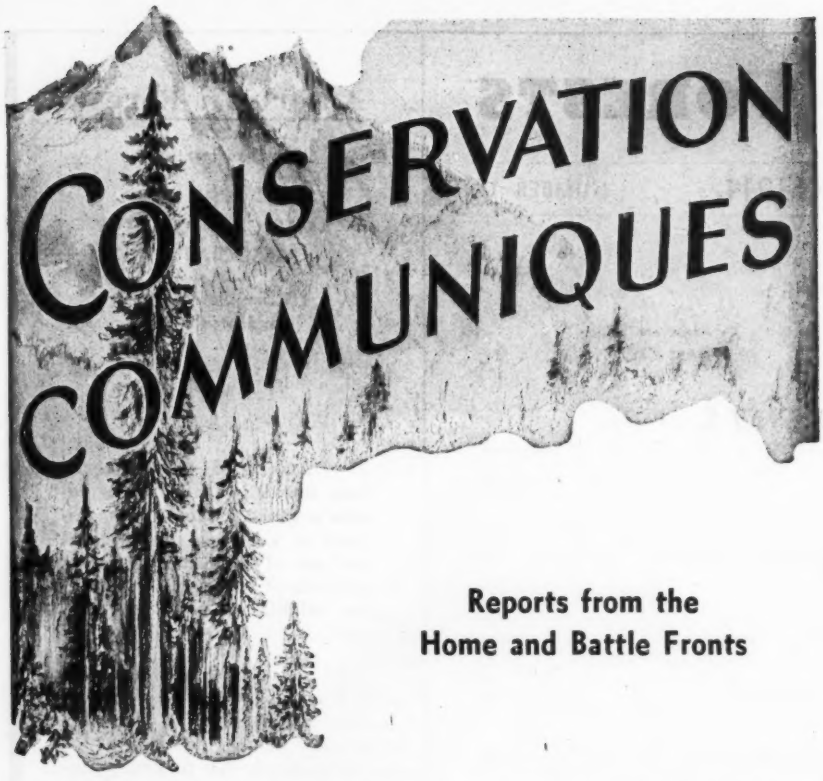


Reports from the Home and Battle Fronts

In addition to casualties that total nearly 15,000,000 killed and wounded, the Swiss newspaper *Die Nation* reports that Germany's supply of game has decreased to two-thirds, its farmland has been exhausted, and its forests have been "ruthlessly cut down because the synthetic material industry needed wood."

• • • •

With control of ninety percent of the world's rubber supply, the Office of War Information reports that Japan has had two years in which to stockpile this vitally important war material. Although all of it is in the southernmost conquered territories, she has a sufficient supply to make such prodigal use of it as paving streets and, in Borneo, cutting down rubber trees to make way for rice plantations.

• • • •

The fall of Germany is not expected to relieve the lumber situation appreciably, since military requirements will continue at a high level, WPB has announced. For example, increased amounts of dunnage lumber will be needed for the transportation of large quantities of heavy military equipment to the Pacific theater of operations. Only hardwoods in the lower grades will become more plentiful.

War demands during 1943 reduced housing construction in Melbourne, Australia, to an equivalent of twelve six-room houses having a total value of $39,000. A five-year program providing for 50,000 houses has been drafted by the Victorian Housing Commission to alleviate the inevitable postwar crisis.

• • • •

A bright spot in postwar rebuilding is the present forest products situation in Sweden. A report to the government states that stocks of sawn goods ready for shipment are sufficient to provide for export quantities as large as before the war.

• • • •

To land 100,000 men on a large Pacific island, says the Army, would require 61,547 tons of lumber.

• • • •

Even German-controlled newspapers in occupied Belgium prior to its liberation by Allied forces, were obliged to admit that the Nazi occupation virtually ruined Belgian agriculture. "The war," wrote one, "has caused a loss of $480,000,000 to Belgian agriculture. The impoverishment of that industry extends to the livestock, the equipment, and the reserve fertility of the soil."

Low water levels in the rivers and streams of eastern Canada have prevented the floating of some of last winter's pulpwood cut to mills downstream, causing concern over the pulpwood supply situation for the last quarter of 1944.

• • • •

According to OWI, the activities of the Timber Production War Project have resulted in production of more than a billion board feet of lumber, logs, pulpwood and other essential forest products in the three months' period of June through August.

• • • •

Costa Rica has passed a law granting 3,000 acres to the Defense Supplies Corporation for the establishment of a cinchona plantation—to be increased to 5,000 acres if required later on. The contract provides that for a period of twenty-five years the corporation, or its successors, will have complete control of the property.

• • • •

A new national fish hatchery recently opened at Pongo, Bolivia, is expected to supply stock for enough lakes and rivers to make that country self-supporting in this food item.

• • • •

Total 1945 mahogany requirements of 33,627,000 board feet of logs and 6,000,000 feet of lumber are reported by WPB. Since this represents only eighty-five percent of the 1944 requirements, difficulty in filling these needs is not anticipated.

• • • •

Balsa wood was among the sixteen commodities removed from governmental control October 1.

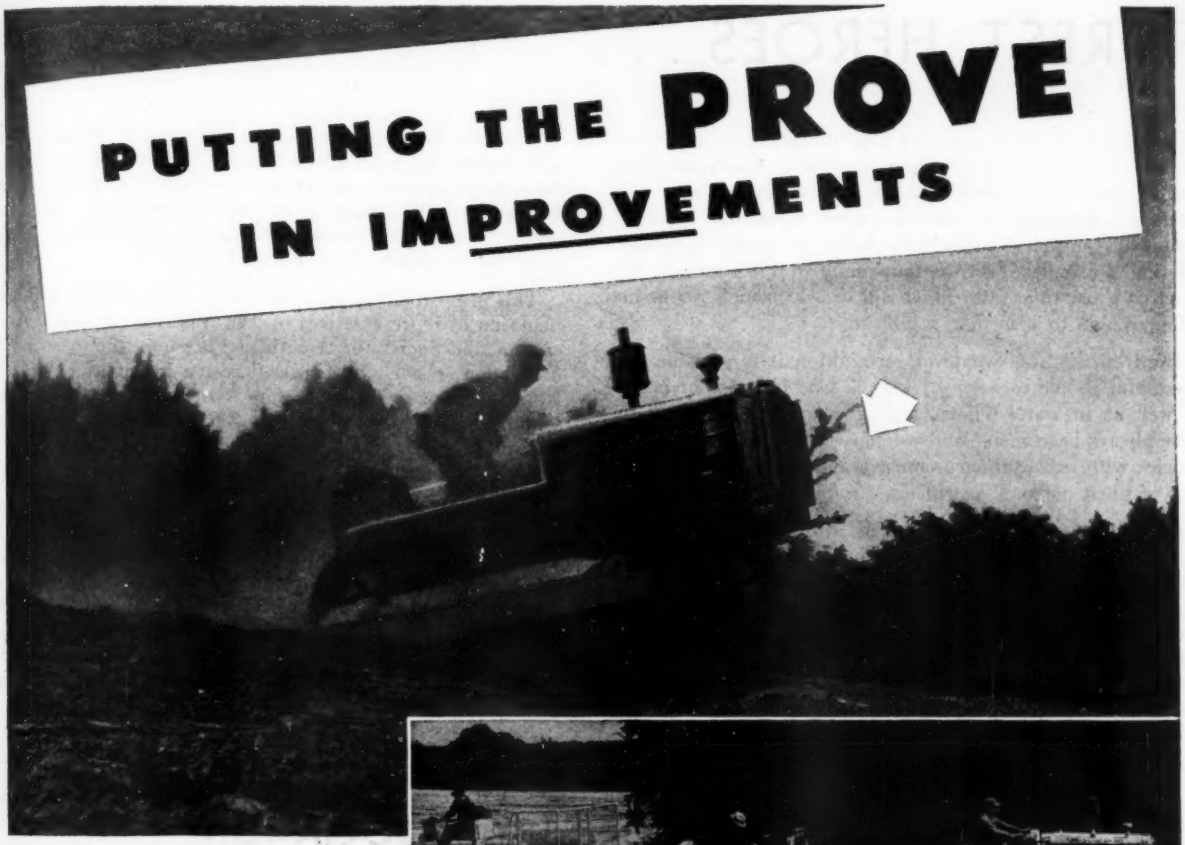
• • • •

An astonishing variety of uses of the babassu tree has been revealed in a statement by the Brazilian Government Trade Bureau. These range from raw sap used as horse food to oil for the manufacture of soaps and cosmetics. In addition, new leaves are used for construction of native huts, dried leaves for baskets, mats and similar articles, nut stalks and nuts for fertilizer, and shells and husks for fuel.

• • • •

Hungary has increased the number of its fur farms and breeding stations, particularly for silver fox, mink and raccoon.

PUTTING THE PROVE IN IMPROVEMENTS



• *This bucking bronco is a "Caterpillar" Diesel D2 Tractor taking one of the many "hurdles" that are designed to test its toughness on the "Caterpillar" Proving Grounds.*

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FOREST HEROES . . .

SCARCELY a day passes but that the press or radio recounts the exploits of war heroes—young Americans who are serving their country with unusual resourcefulness and courage. Yesterday it was a former mechanic rescuing wounded comrades under fire; today it is an ex-banker piloting a crippled Fortress unerringly over his target; tomorrow a one-time farm hand will crawl through a Jap infested jungle to blast out a pillbox.

Heroism deserves whatever recognition it is possible for a grateful people to bestow. This is true in times of peace as well as in war. Whatever their place in society, there have always been men—and women—who meet great emergencies with extraordinary courage and ability, even at the risk of great personal sacrifice.

Consider, for instance, the men who battle forest fires year in and year out on the many forest fronts of the nation. Theirs is a grueling task—an extremely hazardous one. Hundreds of lives have been lost in this unceasing fight to protect the forest resource. Yet, day and night, when an emergency arises, thousands of men toil and sweat in the forests against an enemy as searing and destructive in many ways as the Nazi and Jap legions.

Thus the forest produces its heroes, just as Saipan, Anzio and Aachen have produced theirs. And just as the doughboys, torpedo pilots and paratroopers are honored for deeds beyond the call of duty, so are the smokechasers, shovelmen and axmen of the forest. Heroism among them is recognized by the award of the Forest Fire Medal.

This is awarded by the American Forest Fire Medal Board, made up of representatives of The American Forestry Association, the Society of American Foresters, the Association of State Foresters, the Pack Forestry Foundation and the National Lumber Manufacturers Association, with the representative of The American Forestry Association serving as chairman.

Created in 1937, the Board has awarded the Forest Fire Medal to Urban J. Post and Bert E. Sullivan of Wyoming, for heroism on the Blackwater fire of 1937; to Paul E. Tyrell, posthumously, on the same fire; to Andrew Lindgren of Michigan, posthumously, on the Welcome Lake fire of 1937; to Ernest R. Tippin of Nevada, posthumously, on the Rock Creek fire of 1939; to Walter James, posthumously, on the same fire; to Clarence B. Sutliff of Montana, on the Roaring Lion Canyon fire of 1939; and to Louis H. David, of California, on the Cow Creek fire of 1941.

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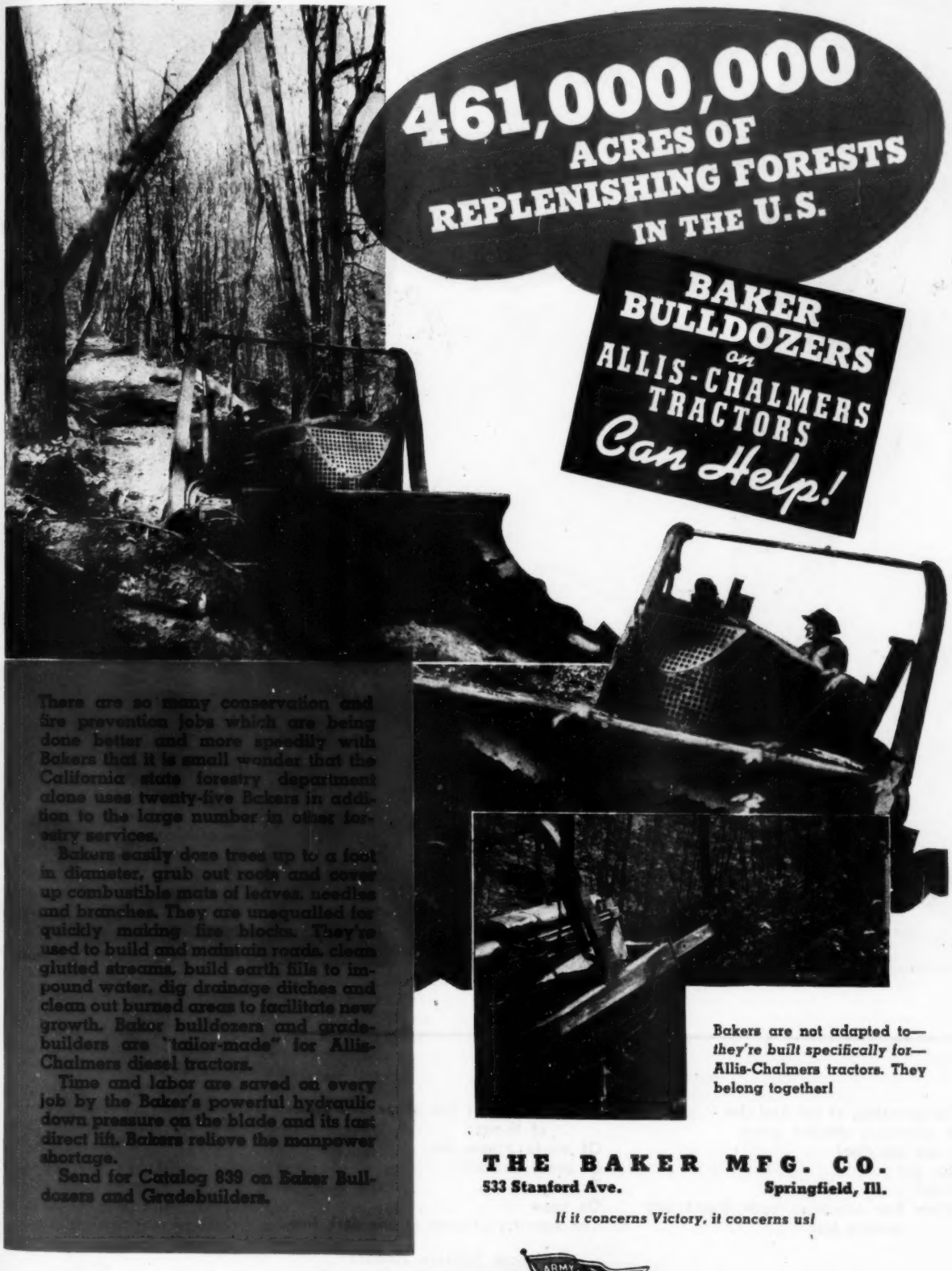

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LINEAGE

The genealogy of oak and elm
In summer's clouded green
Is not inscribed;
Nor yet
In fall
When fire consumes each bright and
burning leaf.

But winter loves the shape and bones
of things;
Of maple, aspen, elm,
Of beech and oak;
Tracing
On snow
The ancestry of each in one dark line.

Frances Minturn Howard

Courtesy The Christian Science Monitor

Editorial

WINGS OVER THE WILDERNESS

DURING the next decade or so, conservation forces in this country will be faced with the problem of how to meet increased air travel without revising some of their basic land-use policies. As a case in point, consider what might happen if privately owned airplanes in the numbers that are predicted for the future are permitted to invade the wilderness areas, totaling 14,000,000 acres, reserved for recreation, education and science in the back country of our national forests.

Any notion that these wild areas, spread out over eighty-one national forests in twelve states, are bulwarked against such an invasion should be dissipated by examining two facts—one historical, the other geographical. The automobile, as many will recall, was in limited use until we launched upon a vast road building program. To satisfy demand, both from travel-hungry citizens and profit-hungry communities, we subdivided the nation with fast highways, encouraged commercial development at every crossroad, and tolerated in the name of progress, abuse and misuse of our land resources.

Despite the purposes for which they were originally created, despite their remoteness and mountainous character, our national forests bowed to the inevitable will of the road builders. In their wake came the legions of motorists, bringing with them all the social and mechanical devices developed by civilization. New problems in administration, protection and management were born, to be solved in some instances only by writing new policies. The wilderness idea was one of these.

This idea was, and still is, to reserve in their primitive state representative areas of the original wilderness that was unfolded to the first pioneers riding into the western sun. In the Rockies, in the Cascades, in the Sierra and in other regions, areas ranging in size from 5,000 to nearly 2,000,000 acres have been barred to the road builders. They serve as classroom and laboratory to the scientific-minded, not only of this generation but for future ones as well. And they offer an outlet for the inherent urge in every man for exploration and adventure—the yearning to "rough it." The American Forestry Association has supported the wilderness idea from its inception and, since 1933, has taken leadership through its Trail Riders of the Wilderness in promoting greater public enjoyment of these last frontiers.

But these areas are more than laboratory and playground. Representing approxmiately eight percent of the total land area of the national forests, they lie partly above timberline and the forest growth they do support is either noncommercial in character or too inaccessible for logging. As vast watersheds, however, wilderness areas perform one of the most vital functions of our public forests.

Motoring reached its prewar popularity because the motoring public demanded roads. Non-commercial air travel will become popular when landing fields, the aerial counterpart of highways, checkerboard the country. This means a network of auxiliary and emergency landing fields, the first to place the air-traveler closer to his ultimate destination, the second to provide him sanctuary in case of mechanical trouble or hazardous weather.

By virtue of their geographical position astride isolated mountain ranges, wilderness areas offer some of the most hazardous flying conditions in this country. Indeed, this is true in general of all national forest land. The one-tenth of the nation's land area falling within national forest boundaries is unquestionably the one-tenth which will be the most dangerous to future air travelers. And this can mean but one thing. When the pressure is applied for the development of a network of landing fields, among the first to be singled out will be the national forests, especially the remote and rugged wilderness country.

There can be no argument, of course, with any measure designed to save lives, and emergency landing fields, in theory at least, are for this purpose. But, human nature being what it is, can adequate controls be placed over large isolated areas to prevent their use for other purposes—game poaching, for example? Without controls, such as placing large areas under constant guard, it is conceivable that fishermen, recreationists and thrill-seekers by the hundreds could in a matter of hours descend on wilderness terrain. Emergency fields would then, in effect, become auxiliary fields, inviting new hundreds. The result of such concentrated use would spell death to the wilderness just as surely as if it were quartered by super-highways.

This threat to one of our basic land-use policies, though still potential, is nevertheless dangerous. And while the Act of June 4, 1897, authorizes the Secretary of Agriculture to regulate the use and occupancy of national forest land, including wilderness areas, a spectacular increase in postwar non-commercial flying may well exert sufficient pressure to change this situation—or at least to influence a decision favorable to the family aerial flivver.

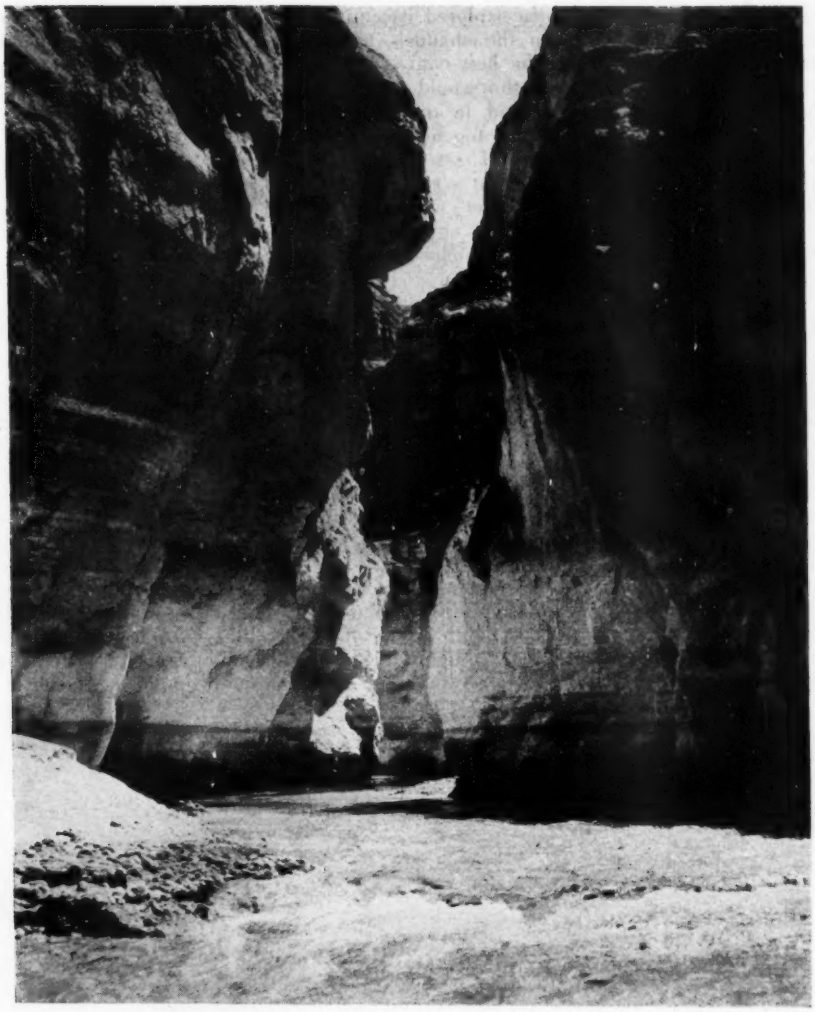
Those who have trod dim wilderness trails understand as well as do the policy-makers and administrators that there can be no compromise where these wild areas are concerned. Only necessary modifications, such as carefully designed improvements for fire protection, are acceptable. Roads and other provision for motorized transportation—and this includes airplane landing fields—are definitely contrary to wilderness concepts.

Thus far the forces of conservation have successfully dealt with all attempts to motorize existing wilderness areas. This new threat, which undoubtedly will materialize in the not-so-distant future, may offer problems of unprecedented magnitude. Their sane handling will, therefore, be the greatest challenge yet encountered in preserving the wilderness idea.

ROUGH WATER

One of the few to journey down the perilous Colorado River, a woman recounts the adventure of running six hundred rapids

By MILDRED E. BAKER



The beauty of the sheer canyon walls was breath-taking

AS the world knows, Major John Wesley Powell, one-armed veteran of the Civil War, was the first explorer to brave the terrors of the Colorado River. I say terrors because when he set out on his great adventure in 1869, very little was known of the river and the country through which it coursed. Even the Indians were vague, some of them claiming that the river flowed underground for many miles, that there were impassable waterfalls.

Major Powell, of course, proved that the Colorado could be conquered and the story of his epic journey is a vivid chapter in American history. Since his time, not more than forty-eight men in a total of eleven expeditions have successfully negotiated both the Green and Colorado rivers to the present site of Boulder Dam, while the whole course is a graveyard of boats wrecked in an endeavor to do so.

In 1938, while in the Navajo Mountains of northern Arizona and southern Utah, I learned of Norman Nevills, who that summer had successfully led a party down the river to Boulder Dam. And being one who believes that rugged adventure should not be monopolized by men, the idea of following in Major Powell's footsteps took a firm grip on me. This was enhanced by the knowledge that several women had made the trip with Nevills.

This idea was nourished until late in 1939 when I found that arrangements could be made to join a party Nevills was planning for the summer of 1940. Much to my delight the trip proposed would be from Green River, Wyoming, Major Powell's starting point, to Boulder Dam, 1,163 miles, I was told, of the most gorgeous scenery in the world—and 400 miles longer than Nevills' 1938 voyage which began at Green River, Utah.

After a winter of research and preparation for the journey, our party of nine — seven men and two women — came together at Green River on June 19. We found that Nevills had built the boats, and would be in charge of No. 1. Doris, his wife, was to serve as chief cook. In command of boat No. 2 was Dr. Hugh C. Cutler of the Missouri Botanical Gardens at St. Louis. His object in joining the group was to make a botanical collection, and he was joined in this desire by the writer, who planned not only a botanical collection for the Buffalo Society of Natural Sciences, but also a study of bird life. Due, however, to extreme drought, the speed with which we traveled and lack of leisure ashore, we completed the journey with an ungratified sense of accomplishment along these lines. In charge of boat No. 3 was Del Reid, skilled riverman, prospector and woodcarver.

With a proportionately greater number of men, it might be thought that chivalry would dictate that the women be pampered and waited upon. This would certainly have been contrary to our wishes, and it is a matter of just pride that we joined in every activity and in addition performed every bit of

camp work, asking for and receiving little assistance.

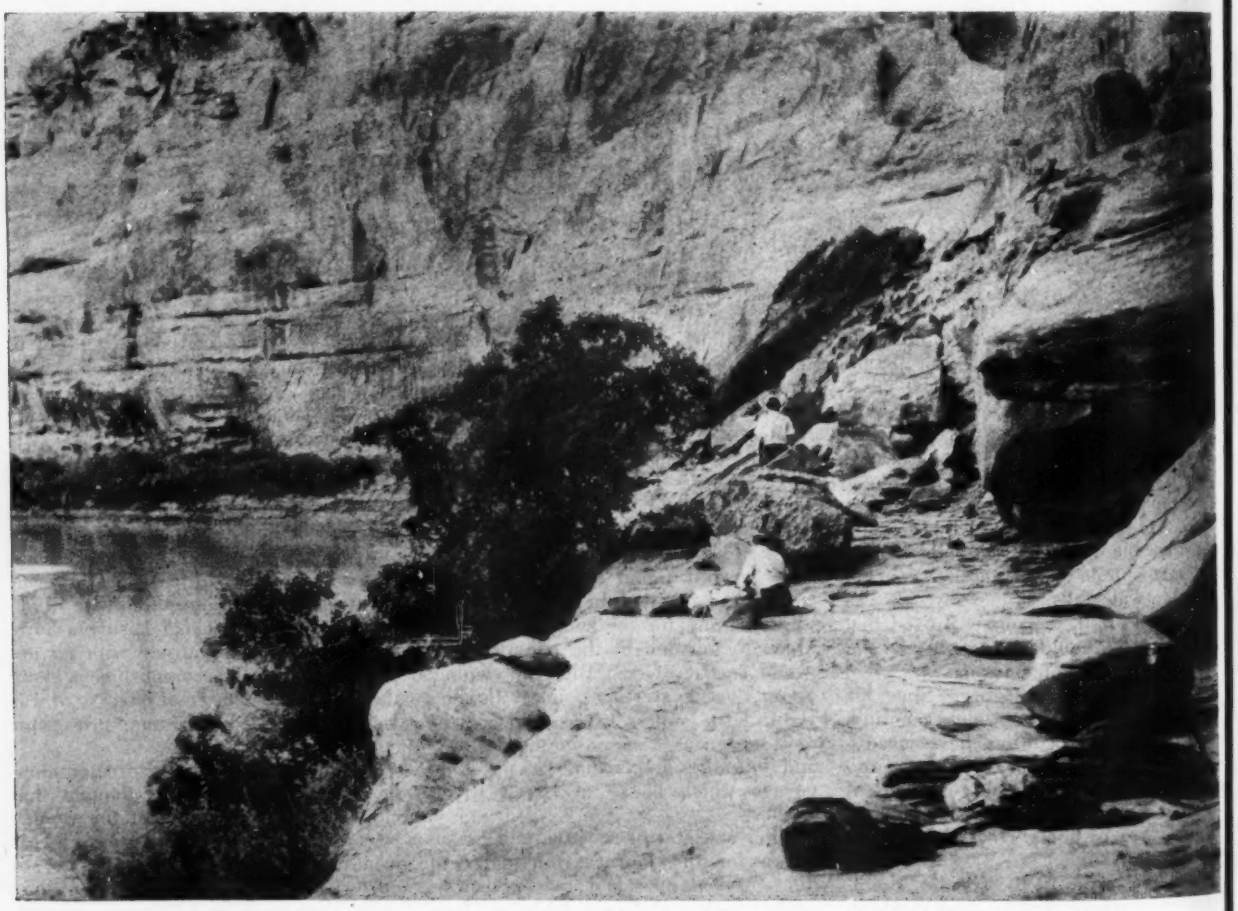
We traveled in three open rowboats, sixteen feet long, six feet wide and with an eighteen inch draught, carrying eight and a half foot oars. These sturdy craft were built of plywood, which seems to be the answer to the problem of running the rapids encountered on the voyage. They were resilient enough to withstand much banging against rocks, although repair work was constantly in progress and for the last three weeks of the journey we bailed water from the hatches continually.

In the course of our voyage we ran more than 600 rapids, and due to the exceedingly low stage of water it was more hazardous than usual. Every rock in the river bed, it seemed, was close to the surface. Nevertheless, we were the first expedition to run every rapid on the river without "lining" a single boat. I might explain that in "lining" a rapid, the boats are lifted and hauled from boulder to boulder along the shore, an exceedingly laborious undertaking.

If a rapid looked dangerous, the passengers would land while the three boatmen explored its entire length, sizing up the channels and determining upon the best course. Sometimes this examination would entail hours of standing around in the blistering sun. If it were not too bad, we would don lifejackets and set out. One passenger would lie flat across the stern deck of a boat, another would sit in the bow cockpit, both clinging tightly to ropes, while the oarsman turned the boat stern first downstream. In running rapids stern first, the boatman could not only see where he was going, but by rowing upstream, could check his speed and better control his course. In some cases there was an exhilarating velocity in running rapids, but I am sure every one of us felt the same tense fear and anxiety as we entered the more vicious and complicated channels, where the boats would rock and toss and almost overturn, and huge waves would almost strangle us.

If the rapid proved too dangerous, the passengers were sometimes obliged to walk or climb around it on the cliffs. This was to lighten the boat's load. There are, however, on the Colorado two rapids which *must* be run — the Sockdologer and the Grapevine. Here the cliffs come down sheer to the water's edge. There is no climbing out, no walking around, no turning back—nothing to do but run through. When Major Powell approached the first named rapid he halted to examine it and exclaimed: "This is the Sockdologer of the world,"—meaning that in his estimation it was the worst rapid in any river on earth. Government surveyors have measured the waves as being twenty feet high in low water. Our boats were sixteen feet long!

Both the Green and Colorado rivers run through a series of canyons, each being divided by a change in geological structure, which also determines to a considerable extent the severity of the rapids. In Glen Canyon, for instance, we were in a sandstone country of rounded slick rocks and sheer cliffs. Through this softer rock the Colorado runs more or less smoothly, but when we came to Marble Canyon, with walls 3,500 feet high, we were in limestone country. This harder rock meant more rapids. Marble Canyon extends from



Camp sites like this were rare—but then little time was squandered in trying to be comfortable

Lees Ferry to the junction of the Little Colorado River, below which we entered the Grand Canyon.

The Hance Rapid, reached soon after we entered the Canyon, marks the beginning of granite—down in the very bedrock of the earth. These granite walls rise to a height of 1,300 feet above the river, while the depositions of sandstone and limestone above bring the cliffs to a height of from 5,000 to 6,000 feet.

Usually rapids were formed by the entrance of a side-canyon stream which had washed down huge boulders blocking the channel. In the granite we encountered a different type of rapid, caused apparently by a dyke or ledge of hard rock rising from the softer rock. This formed a dam the entire width of the channel, over which the water poured in swift descent with a long line of interference waves below. And there are 465 of these rapids in the 217 miles of the Grand Canyon section!

The Green River comes into the Colorado from the north, having its source near Fremont Peak in the Wind River Mountains of Wyoming, while the Colorado rises in the Rocky Mountains west of Longs Peak in Grand Lake. This upper Colorado was formerly known as the Grand River, but really the Green is the upper continuation of the Colorado.

On leaving Green River, we traveled for two days in more or less open country, but on the third day entered Flaming Gorge, the gateway to the canyons, with cliffs 1,200 feet high. It seemed that someone had left the gate open at the other end, for as we entered we had to combat a terrific upstream wind which nearly capsized us. We suffered from the cold at various times on these northerly reaches, probably because of the high altitude, which was around 6,100 feet at Green River. Later, at lower elevations, heat was our main problem.

Our first really bad rapid was Ashley Falls, where in 1825 a former governor of Missouri, floated down Green River and chiseled his name on the huge rocks at this point. He was wrecked a little

A lady in trouble. The writer (above) being rescued after a mishap below Bright Angel. At right, the "Joan" is pried loose from a rock in Cataract Canyon

below here, climbed out and was never heard of again.

We ran the Red Creek Rapid with passengers, the first party ever to do so, and came into Brown's Park, a beautiful grove of cottonwoods in a valley several miles wide. This ran to the Gates of Lodore, the canyon being named by Major Powell after Robert Southey's poem "How The Waters Came Down at Lodore," an apt description of these wild waters. The canyon, with walls 2,700 feet high and peaks behind rising a thousand feet higher, has a descent of 425 feet in twenty miles, most of this drop occurring in twelve miles. The most impressive canyon entrance in the world, the river has here cut through the mountain which lay in its path. In fact, Green River has carved its way through the Uinta Mountain Range.

There are three bad rapids near the entrance, Upper and Lower Disaster Falls and Triplet Falls, besides innumerable minor ones. The Upper and Lower Disaster have a fall of fifty feet in a half mile. Here the boat of which I was an occupant had a near-disaster, being stuck on a rock and necessitating rescue by other members of the party. Each boat was equipped with a long, stout rope fastened fore and aft, and in effecting a rescue these were thrown to the men ashore. They could then pull their way close to the mishap, or if this proved too hazardous work the boat loose by joining forces in hauling it off the rock.

This boat, the "Joan," had an almost human way of heading toward rocks. A slight change in specifications when it was being built caused it to act as though each rock in the river were a magnet. Consequently, the "Joan" was always getting into trouble, and soon became known to its occupants as the "Jonah."

Aside from the always-changing beauty of these canyons, we had a variety of wildlife to interest us. Deer were plentiful all along Green River, and beaver accompanied us all the way down to Lees Ferry. Great blue herons squawked their protest at our intrusion throughout the journey. As we came into the canyon country, the dainty little canyon wren poured forth its plaintive melody, a descending cadence of piercing sweetness which has ever typified to me the wild and untamed freedom of these tremendous canyons.

Canada geese were frequent along Green River, their young not yet able to fly, and we regretted the consternation we caused in these little family groups. The adult would not desert its young, but would pilot them as they bobbed up and down through swift rapids in an endeavor to get away from this unforeseen menace.

The most characteristic bird of these northerly reaches was the cliff swallow, and the interesting mud nests of these tireless flyers were seen in thousands plastered on the cliff walls.

While having no bearing on the wildlife of the region, we were much interested in the carrier pigeons we took along for the first few weeks, furnished us by a Salt Lake City newspaper. These birds were released by twos or threes with films or messages relating our progress. Most of them returned promptly to their Salt Lake roost, but the last two furnished us with a thrilling drama.

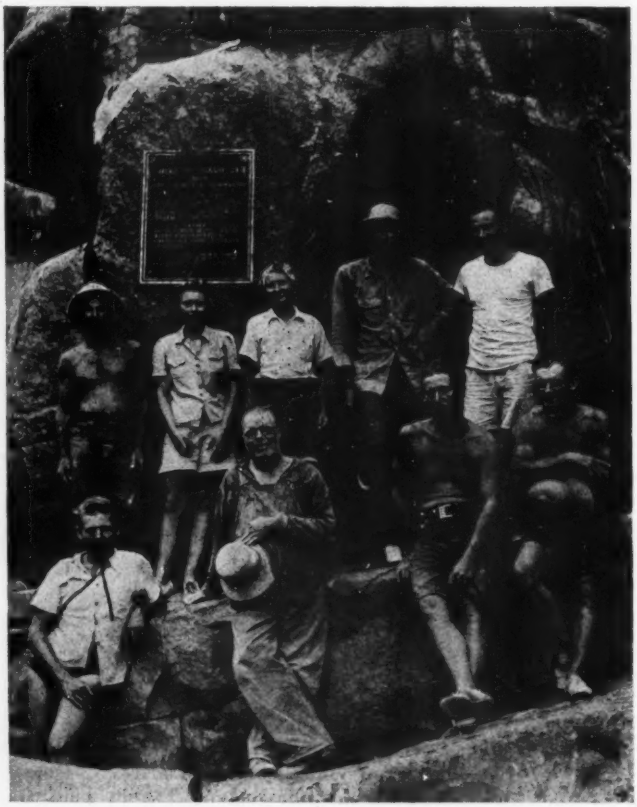
The larger of the two birds had been cooing constantly for several days and nights. On this particular morning it was decided we would release only one bird and retain the other for the following day. Attaching a message to the leg of the smaller bird, we released her, but instead of flying high and circling she flew directly across the river and perched on a rock. In the meantime, the remaining pigeon acted for all the world like a frantic human, pacing back and forth in his cage and fluttering his wings against the sides. Seeing his great agitation and noting the continued sit-down strike of the bird across the river, we decided we would write a message telling the story of their devotion. This was attached to the caged bird and he was released. Having had no possible way of seeing where his mate had flown, he headed, nevertheless, straight toward her. They met in midstream and flew off together. At last report they had not been heard from, but whether they stopped to nest enroute or were taken by hawks is not known, of course.

Just beyond Green River, Utah, we came upon a beautiful geyser, formed some years ago by an oil drilling operation. Around 3,000 feet deep it would gush forth on an average of every forty minutes, often to a height of seventy-five feet. At night we spread our beds as close to it as possible, and in the moonlight its regular eruptions were tremendously beautiful. No one attempted to sleep—it was too lovely.

In fact, the nights were of such entrancing beauty that very little time was squandered in sleep. Insects, the roar of the river, the general discomfort and the heat, which remained about 100 degrees, throughout the night as we progressed south, may have contributed to this, of course. But, never will we forget the glory of those nights. We had three full moons on our journey, and there is no more glorious sight vouchsafed mortal than the moonlight on these canyon walls!

At the junction of the Green and Colorado rivers there was a noticeable difference in the color of the water. The Green could never have been termed clear, but as we entered the Colorado, its muddiness gave a dark brown tint to the water. This color changed from time to time as conditions varied. Sometimes when a flood came down, the water was a red brown — hence its name, which is Spanish for red.

Immediately upon enter-



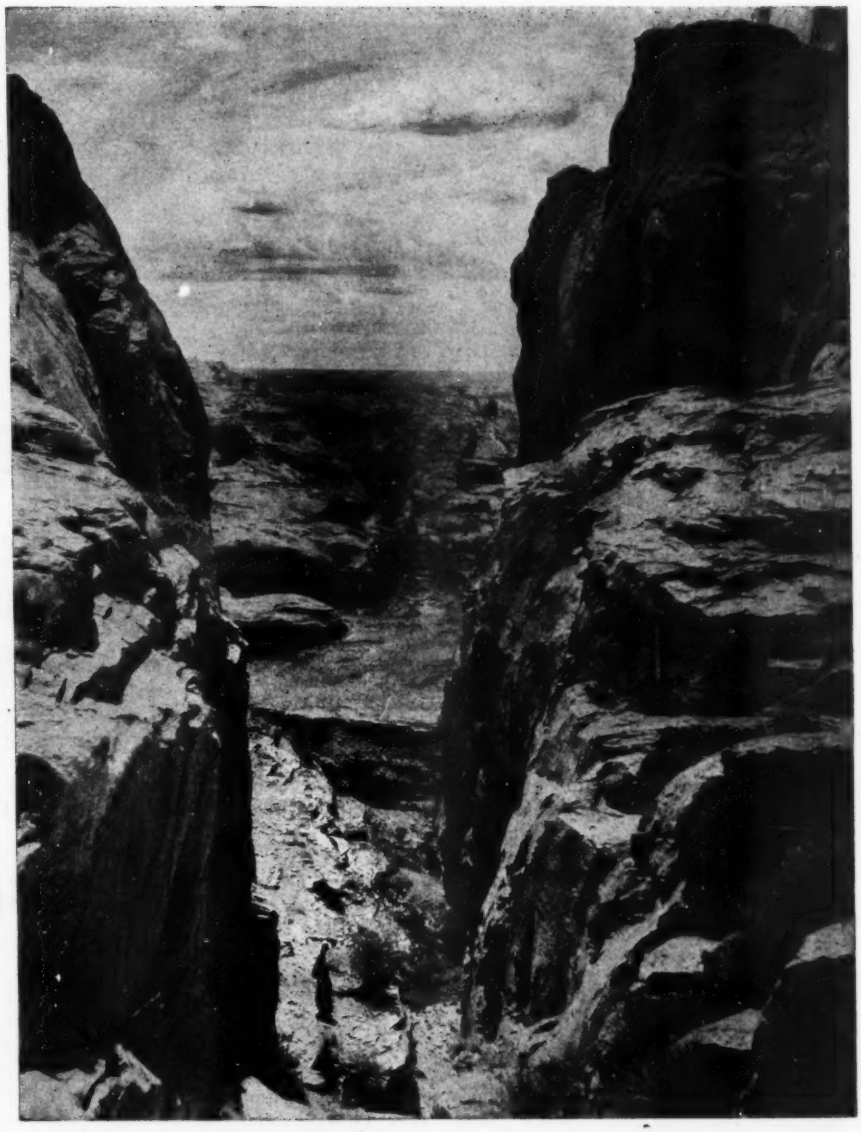
The party poses beneath the plaque at Separation Canyon, where three of Powell's men were killed by Indians

ing the Colorado we spent considerable time tarring the seams of the boats and battening down the hatches, for we were entering Cataract Canyon, the killer canyon through which few expeditions have come safely. Cataract follows cataract in swift succession. This section is credited with the greatest descent on the river, a fall of seventy-five feet in three-quarters of a mile.

When we came to Rapid No. 24, the first two boats running without passengers, came through nicely. But when Del, in charge of the "Joan," went through he was swept off the chosen course and hung up on a huge rock, securely pinned there by tremendous waves. The men struggled all afternoon to free the boat and, finally, when it was pulled loose, it started to sweep downstream, the current turning it over like a fallen leaf. Instantly Dr. Cutler swam out to catch it, while one of the other men took to a boat stationed below. Between them the "Joan" was maneuvered ashore, a sadly battered craft.

Successfully running the last rapid in Cataract Canyon, we were soon in Narrow Canyon, the longest straight stretch on the river. At its end we came to the Fremont, or Dirty Devil River. This latter cognomen was given it by Major Powell, who had called ahead to one of his party, asking what kind of a stream was emerging from the canyon. The reply was, "She's a dirty devil," thereby suggesting its name. It has since been changed to the unpicturesque name of Fremont.

Soon the canyon walls dropped and we reached rather open, rolling country. At Hite, where there is a ranch run by a hospitable couple, we spent several happy days feasting on canteloupe and watermelons—endeavoring to satisfy to some extent a terrific craving for fruits.



Hole-in-the-Rock, through which the Mormons in their 1879 trek to the San Juan country brought their wagons to ford the river, 2,000 feet below

Hite marks the beginning of Glen Canyon, that 176-mile stretch of comparatively quiet water, the most historical section of the river. In this stretch we found *El Vado de Los Padres,* the Crossing of The Fathers, where Padres Escalante and Dominguez in 1776 crossed the Colorado River on their way from Santa Fe to Monterey.

Here, too, we spent some hours at the Hole-in-The-Rock, a stupendous epic of human achievement. In 1879, the president of the Mormon Church issued a call for a company to penetrate and settle in the San Juan country of southeastern Utah, a desolate wilderness. To get there it was necessary to cross the Colorado River, and a man was sent to scout the route. When he came to a notch in the west wall of the Colorado, he reported that as being a feasible route, as he could see no rapids in the water below.

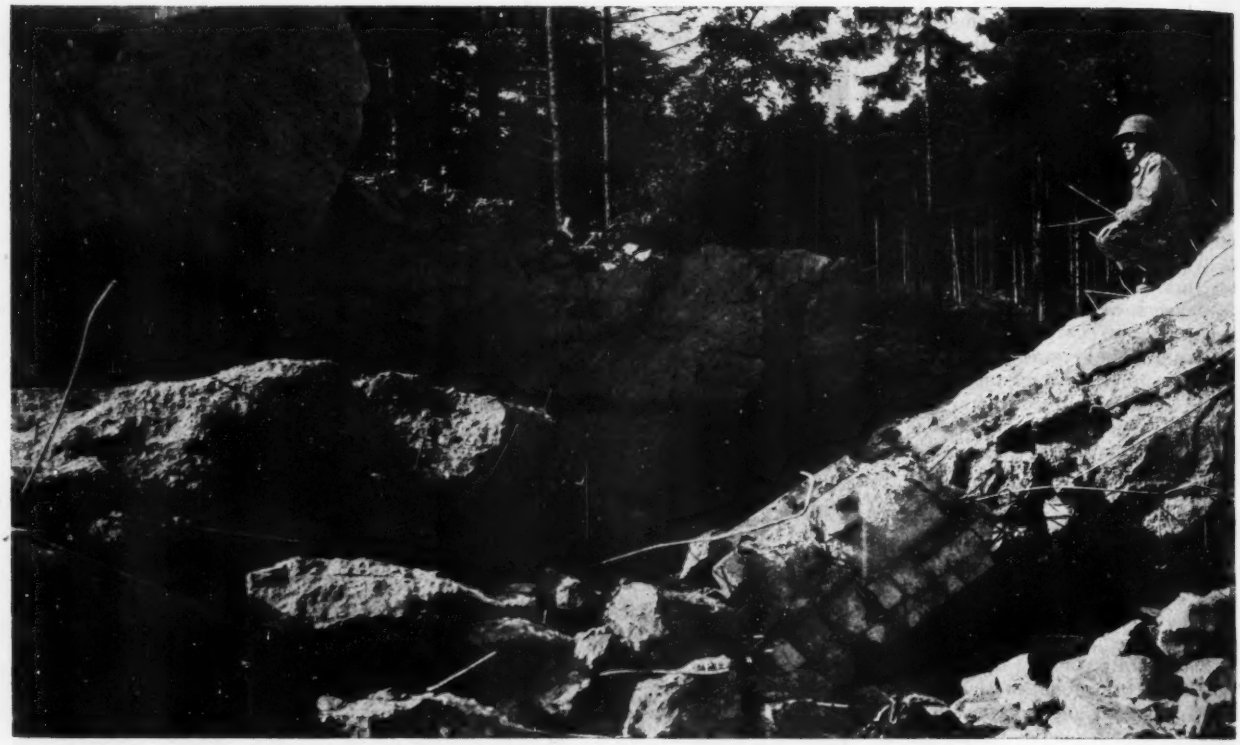
This Hole-in-The-Rock, as it is called, is a cleft 100 feet in depth between sheer rock walls, with the river 2,000 feet below. This descent is so abrupt that at scarcely any point is it possible to walk directly toward the stream.

Here, after two months of terrific hardships and difficulties in building a road down this sheer cliff, and encumbered by livestock for which there was neither food nor water available, more than 200 pioneers brought their wagons down the cliff, crossed the dreaded waters and built a road up the eastern wall to their destination at Bluff, Utah.

One of the main objects of our expedition was to locate a new natural bridge. Rumors of a massive formation had reached Nevills, and it was with great anticipation that we landed at noon one day at the mouth of Escalante Canyon, where in 1776 Padre Escalante reached the Colorado River.

Packing extra food, six of us headed up the canyon, wading most of the time in a shallow stream. Escalante is a beautiful canyon, full of caves, arches—even an upside-down arch — tapestry walls and refreshingly cool springs. We came to the mouth of Forty Mile Creek Canyon in the late afternoon and, not knowing how much farther we would have to go, spent the night at this point.

(*Turn to page* 572)



Though war is moving into German forests, as evidenced by this blasted pillbox, the author believes they have not been seriously overcut and that measures limiting their contributions to future warfare should be written in the peace plan

FORESTRY IN THE PEACE PLAN FOR GERMANY

By PAUL A. HERBERT

THE forests and the forestry practices of Germany should be among the subjects considered in drafting both the immediate and the long range peace plan. German forests have provided many of the sinews of this devastating war of conquest that so nearly succeeded. German forestry may either encourage another world war or assist in maintaining the peace.

The importance of forest resources in the prosecution of this war is too well known to require detailed enumeration, but their importance in the peace to come and in future wars is not fully appreciated. American soldiers were trained in camps built—and built quickly—of wood; they are supplied with food and ammunition packed in paper and wood; they carry canteens and gas masks made in part of wood plastics. In the future, however, wood resources, physically and chemically treated, will become a necessary and a very acceptable substitute for many items now fabricated from such non-renewable resources as metals and mineral oil. The plastic mine is only a forerunner of non-metallic ammunition, of non-metallic planes and weapons of the next war. This future armament will be more effective, and hence more horrible and devastating than anything yet designed. Forest resources, without doubt playing an even more important role than they do today, will be a conspicuous constituent of such armament.

Therefore, in the latter half of the twentieth century the nations that have access to a generous supply of lumber, paper and other forest products will have an undeniable advantage over the have-not nations. A country that would plan to incite and wage war will make sure of a huge stockpile of the wood resource before daring to assume the aggressor's role. Conversely, nations that would be prosperous and contented in peace will encourage the production of a maximum of forest crops the world over, and make certain that these crops are not converted to war purposes.

In preparing for this war, and for the Nazi dominated world planned to follow, Germany was not unmindful of the importance of the forest resource. Franz Heske, a German forester, in his book, *German Forestry*, wrote in 1937 that "Timber consumption . . . has greatly increased, owing . . . to the resumption of the right to arm and active prosecution of a policy of national defense." This "policy of national defense" we now know was in reality national offense! Nor did the Reich even in the exigency of war forget the future. As depicted in *American Forests* (Editorial, "The Axis and the Ax," July, 1943, and "Nazi Forestry," by P. L. Buttrick, March, 1944) forest regions conquered by the Germans that obviously could not be included in the "Greater Germany" were ravaged of their timber so that the forests of the Reich could be conserved for peacetime use and, if need be, for future wars.

Now that the immediate German plans have gone awry, the Allied Nations should make the realistic assumption that Germany is looking ahead to another *Der Tag*, and is doing so with

an eye upon her woodpile. That woodpile should therefore figure in the peace plan. Of course, the peace plan should attempt to avoid engendering the unrest that breeds and nurtures the desire for revenge. Failing in this, as it will to some degree, the plan should contain provisions to safeguard against uprisings to satisfy that revenge. The following forestry provisions, if incorporated in the peace plan, would serve both purposes:

1. German forests will be managed for the next fifty years on short rotations, growing trees to small sizes only. These rotations will be fixed to grow the maximum wood possible and still obtain timber large enough so that the entire supply will be utilized efficiently. The rotation and cutting practices in any forest must not cause erosion or otherwise endanger the productivity of the forest site.

2. The trees in German forests now of an age and size greater than necessary to meet Provision 1 will be considered excess. They will be cut within the next ten years, manufactured into lumber and other products and then used in rehabilitating devastated areas in the countries invaded by Germany.

3. The German Government will subsidize primary and secondary wood-using industries to the end that all forest products prior to export may be in the form required by the ultimate consumer.

4. Germany will be permitted and encouraged to import raw forest products and to export finished forest products.

5. The 2,000,000 acres of idle and waste land in Germany, considered unsuited for agriculture, should be reforested within the next ten years.

The effect of these suggested peace provisions can only be approximated, as data on German forests were concealed even before the war. The latest forest statistics available are for 1927. Nevertheless, it is possible to review the results that should accrue if the several provisions are applied to conditions as now assumed to exist in Germany.

Of the three possible means of accumulating wood reserves, so necessary to German war economy, only one will be open to Germany in the future, that of cutting less than the growth in her own forests. The importation of wood in excess of immediate requirements can be prevented easily by the Allies, and the cutting of timber from conquered forests now is only a dream. So accumulating a reserve of living forest resources by conservative cutting in her forests may well become a part of Germany's own postwar plan, if the Allied Nations permit.

Provision 1 would definitely prevent the accumulation of such a wood reserve during the next fifty years. Before this provision can be applied correctly, a study would be necessary to determine the maximum tree age classes that would be permitted in each forest region. It is suggested, however, that the average maximum age of the principal species in German forests should approximate the following: Spruce, sixty years; fir, oak and pine, eighty years; and beech, a hundred years.

Proper forestry practice involving short rotations based on the ages suggested will not cause site deterioration. Such rotations are particularly desirable in a country faced with a general deficiency of natural resources, because they approach the rotation that will result in the maximum production of wood. Shorter rotations, even more closely approximating the maximum wood production, cannot be recommended because it is necessary to produce timber of a size large enough to meet the requirements for all kinds of forest products.

Admittedly the maximum ages suggested often will not bring the maximum monetary return from the forest on the capital and labor invested. However, it is submitted that steady employment, not

Crux of the author's plan is that, after the fighting ceases, Germany's forests be managed on short rotation, growing trees to small sizes only. Beyond the stipulated sizes, trees would be cut to rehabilitate devastated areas in invaded countries

maximum profit nor maximum wages, should be the major consideration in the management of the forests in a country with a history of aggression which the world desires to hold in check.

If German forests, regenerated by seed, are managed on the rotations suggested, the cut from 1945 to 1995 would be from 1,400,000,000 cubic feet to 1,600,000,000 cubic feet a year, excluding the volume obtained from cutting the excess timber now present. If, to the production from these forests, which constitute ninety-two percent of the total German forest area, is added the probable production from the sprout forests, the total cut should almost be sufficient to meet Germany's minimum forest products requirements, estimated at 1,800,000,000 cubic feet. This figure is only eight percent below the Germans' own estimate of their minimum requirement, and equals their consumption during the depression years of 1931 to 1933. It should be re-emphasized that this cut does not include the timber now older than the maximum ages here suggested, and would not result in a depletion of the forests. Indeed, Germany after 1995 could increase its cut considerably if it maintains the same length rotations.

While thus providing sufficient wood to meet Germany's minimum needs, her forests can still provide a tremendous amount of timber during the next ten years to assist in rehabilitating devastated areas in the countries that were invaded. There is every reason to believe that German forests, while probably heavily cut during the first year of the war, have not been overcut seriously. The evidence available would indicate that Germany may have undercut its forests deliberately for many years. Fully one-fifth of the forest area of the Reich in 1927 contained timber of an age and size above that necessary to take full advantage of the productive capacity of the forest soil. Over 1,000,000 acres contained trees more than 120 years old.

Data, of course, are not now available to show what changes have occurred in the acreage in each tree age-class since then. The Allies may find that Germany has cut all of the timber that in 1927 was, or has since that time, reached the age-class of 120 years and over, and all of the timber in the age-class from 101 to 120 years, except 754,000 acres of slow growing beech. In addition, it may have cut 1,000,000 acres of fast growing spruce that would now be in the eighty-one to 100 year age-class. If this cutting, heavier than the prewar cutting practices, has been made, then Germany still would have approximately 20,000,000,000 cubic feet of growing stock in excess of that required to meet Provision 1. If this growing stock were cut at the rate of 2,000,000,000 cubic feet a year, it would assist materially in rebuilding the regions ravaged by the war.

The forest products from this 20,000,000,000 cubic feet of excess forest growing stock may be either a stipulated form of reparations, or if such reparations are found to be economically unfeasible, the products may be sold at a controlled cost to the neighboring countries. Regardless of the means used to supply subsistence wages to German workers while they cut this excess timber from their forests, and artificially replant where necessary, the project would probably furnish work for not less than 750,000 men for the next ten years. The countries receiving this timber would be able to reduce materially the amount that normally would have to be cut from their own forests. This reduction of cut for the ten-year period would restore, in part at least, the deficiency in growing stock resulting from the overcutting that probably took place during German occupation. What is equally as important, it would make available local woodsmen released from timber cutting for rebuilding operations, using the reparation products received from Germany.

Provision 3 is included because it is assumed that the peace plan will insist on the elimination in Germany of industries that are either directly engaged in the production of armament or that may be converted readily to that purpose. Such industries even in peacetime employed millions who must now find employment elsewhere. While a number of these will be able to find a meager livelihood on subsistence farms, most of them must, if they are to live, find employment in other industry.

Sawmills and other wood-using industries generally cannot be converted to warlike uses and therefore should be encouraged. If the export of raw, or partly fabricated wood products, were prohibited, the wood-using industry would be able to absorb an appreciable number of workers dislodged from other industries. Were Germany to supply the 20,000,000,000 cubic feet of reparation wood in fabricated form, it would furnish new employment for approximately 1,000,000 workers for a period of ten years, long enough to permit gradual redistribution of workers into other non-war industries. Supplying wood products in finished form would also be helpful to the Allied Nations, because its workers could then concentrate directly on the rehabilitation of the devastated areas.

Provision 4 is included for the purpose of assisting Germany to find useful and permanent employment for men who by treaty stipulation will have to find other employment. If, as suggested, Germany were to build up its wood-using industries during the next ten years to fabricate a large part of the reparation timber, it might well be able to continue many of the temporarily employed men in such industries, providing raw forest products were imported to take the place of the reparation timber after its cutting had been completed.

Provision 5 requiring the planting of idle and waste land with forest trees needs few words of support. Obviously, it is to the advantage of the world at large to have every acre productive, particularly in densely populated areas. By the year 2000, when it is assumed Germany will have completed its own rehabilitation in the eyes of the world, the crop from these afforested acres will begin to yield wood products.

During the first ten years, and to a lesser extent thereafter, such an afforestation project would supply both full and part-time employment. Probably 10,000 individuals would find two months' employment annually for ten years in tree planting. Such part-time work, which usually would be adjacent to the poorer agricultural areas, might prove sufficient to permit workers previously engaged in the armament industry to develop small farms to the point where they would be self-sustaining. Expanded nursery operations to provide necessary planting stock would give employment to 400 more for the period, and the growing plantations would furnish new employment for several hundred forest workers.

A peace plan containing the five provisions presented here would so reduce Germany's supply of a vital natural resource that a war of retaliation would be difficult to prepare for. It also would reduce the incentive to engage in such a war, as it would supply permanent employment to from 500,000 to 1,000,000 and temporary employment to from 1,000,000 to 2,000,000 Germans dismissed from the armed forces or from war industries. The period of temporary employment would begin as soon as the peace treaty is signed and continue for a period of ten years. It would remove these men from the labor market during the difficult postwar period of adjustment, when the greatest unemployment will occur—unemployment which results in the kind of unrest that may make another Hitler possible. Furthermore, in creating conditions to assist in the avoidance of future wars, the suggested provisions would also penalize Germany by removing part of its forest capital and make it available to those countries that have seen their industries, homes and forests destroyed by the Nazi invader.

THE BIGGEST LUMBER BUYING JOB IN HISTORY

Colonel Fred G. Sherrill and His Central Procuring Agency Have Bought for the Armed Services Enough Wood to Build More Than a Million and a Half Six-Room Houses

By ROBERT TURNER

Colonel Fred G. Sherrill

THE proposed postwar merger of the Army and Navy, at least in the purchasing of supplies, has a proved, workable pattern in the ecenomy and efficiency with which the biggest lumber buying job in history has been accomplished by the Central Procuring Agency which purchases lumber for all the services, or approximately fifty percent of all war requirements.

This has been achieved at a cost to the taxpayers of slightly over one-tenth of one percent, as compared to the five percent it usually costs the government to operate a purchasing department and the two percent that is considered low by private concerns, according to officials of the Central Procuring Agency. The personnel roster of CPA is not much larger than that previously required to purchase lumber for a single department.

Some conception of the magnitude of the job can be gained when it is recorded that *eighteen billion* board feet of lumber were purchased for the services between September 1, 1940, and August 31, 1944, twelve billion of that falling in the period since September, 1942. Government purchases of lumber during the *whole* of World War I totaled 6,349,344,000 feet, a figure surpassed in a single year of this war.

The Central Procuring Agency, in whose ranks representatives of all branches of the Army, Navy, Panama Canal, Maritime Commission, War Shipping Administration, Defense Plant Corporation, Coast and Geodetic Survey and Treasury work smoothly as a team, follows a plan evolved by the Corps of Engineers.

Because the construction of training camps was their chore, the Engineers got off to a head start on the multifaceted task of procuring lumber on a grand scale and in a hurry. The Corps found about 23,000 retailers and 30,000 sawmills in business, but no specific information available on the capacities of the mills or the types of lumber each could produce. Many mills are small operations carried on in the woods without even a telephone.

Typical of the problems the Engineers faced was ponton lumber, an entirely new specification calling for a grade of fir second only to aircraft grade. Buying 18,000,000 feet of ponton stock a year was a tougher job than buying 1,000,000,000 feet of ordinary lumber, because the mills capable of producing it had to be sifted out and started from scratch.

Early in the training program, the Corps issued, under standard procedure, invitations to bid on 200,000,000 feet of lumber for the construction of four cantonments. Then the deluge! Thirty accountants, working day and night for ten days, required 300,000 sheets of paper to compile the bids, and twenty typists were kept busy writing telegrams. By the time the awards were made, the stockpiles upon which the bids had been predicated were depleted.

The Engineers hit on a characteristically direct solution. A system of purchasing was inaugurated whereby "auctions" are held frequently at various points as close to the softwood producers as possible. The government requirements are stated and the producers and wholesalers present offer their lumber. Bids are accepted from the lowest price up until the requisition is filled. Contracts can be prepared in ten minutes and the lumbermen start the orders rolling by telephone or telegrams to their offices. There is no "freeze out"; each supplier can bid for as much as he has. Thus, small business has an equal chance with the large and, most important, the military gets what it needs—and right away.

All wholesalers, commission men, and producers are invited to these auctions, the invitations usually being broadcast through trade associations which are bound by agreement to inform all persons, members and non-members alike.

In the summer of 1942 the various military services were in serious competition to buy all the available lumber, especially special sizes and stress grades,

which reacted to the confusion of the industry and often resulted in distribution of available lumber to less important points while more urgent jobs were held up.

In a *Collier's* article advocating unification of the military services, Senator Harry S. Truman, Democratic nominee for vice-president, who acquired his information at first hand as chairman of the famed "Truman Committee," commented on this situation:

"During the camp construction program, millions were spent for (equipment) lumber, etc., the Army and Navy competing for this equipment. Not only was there no joint purchasing board, but an equal lack of co-operation, when it came to disposal, resulted in additional loss.

"The case of lumber offers a good illustration. Prior to the start of the camp program, prices averaged $30 per thousand board feet. By September, 1940, due to the spirited competition of the war contractors, the average climbed to $41.10. Then, and only then, lumber purchases were centralized, and within a year, prices dropped to $29.35 per thousand board feet. The actual loss, due to competitive bidding, was figured out by the (Truman) Committee as $13,017,576. Not much, compared with total expenditures, but worth saving.

"One central control of procurement and supplies would end the present mob action that puts government agencies in the market as competitive bidders."

As the Army had a smoothly working lumber purchasing organization already in operation, the two major services held a joint meeting and some vitally needed lumber was diverted to the Navy.

The Central Procuring Agency was activated on September 1, 1942, with the Corps of Engineers' purchasing group, which had already handled the purchase of 6,000,000,000 feet of lumber, as its nucleus. It is empowered to draw on its member services for personnel and payroll assistance, and all are represented in its roster.

A lumber Advisory Board, comprising representatives of each using service, was established January 22, 1943, by Army and Navy Munitions Board order to referee the allocation of lumber to the various agencies. However, teamwork has been so good that this board has never had occasion to sit. An unofficial "executive committee," consisting of the liaison men from all using services, does get together frequently for luncheon, and irons out conflicting claims, if any.

The member services file with the CPA bills of material for the account of the United States or for the account of individual project contractors, and such orders are placed at the next scheduled auction. At present CPA is making purchases only for the government except those purchases for war contractors specifically requested by the War Production Board. All the services are on the same priority rating and each, upon telephonic request, may be granted permission to make direct purchases when in the judgment of CPA the quantity involved will not disrupt general procurement.

To expedite operations, offices have been set up in Atlanta with branches in Charlotte, Jacksonville, and Birmingham; in Memphis with branches in New Orleans and Shreveport; and in New York, San Francisco and Portland, Oregon. Special facilities for the purchase of hardwoods have been established in Lexington, Kentucky, and in Memphis. Headquarters are in Washington.

The joint organization is headed by Colonel Fred G. Sherrill, Chief, Procurement Division, Office of the Chief Engineer. At the time of its inception he was Chief, Materials and Equipment Branch, Construction Division, which purchased all lumber for the Engineers.

Colonel Sherrill looks and talks like a West Pointer, which in fact he is, having graduated from the Academy in 1918. He resigned from the Army in 1926 to enter business, and was recalled in May, 1942.

The peacetime interim he spent in the business of growing, processing, and marketing cotton in California where he is the secretary-treasurer of the Boswell Company and vice-president of a subsidiary land company. He is a native of Easthampton on the far end of Long Island, New York, but now calls San Marino, California, home.

Conflicts between the services, Colonel Sherrill feels, are brought about not by jealousy but by the zeal of individuals to do their personal jobs. His success in melding the services into a team has been equalled by the respect he has won in the lumber industry. "I want the record to show," he says, "that such success as our organization has had—and it has succeeded to a marked degree—is attributable to the help of the lumber industry. The industry has met its war responsibilities. In a single month the lumber people have supplied as much as 1,000,000,000 feet of lumber for Army construction alone."

Some lumber firms make it a practice to write or telephone CPA that they have certain stocks and give it first crack before placing them on the market. On its part, CPA has frequently interceded for the industry to procure priorities for desperately needed equipment and has exerted itself to assist in the industry's most crucial problem—manpower.

On November 17, 1943, CPA sent a telegram to 3,000 producers of southern pine asking imperatively that they set aside twenty-five percent of their production for a period of three months. Immediate affirmative replies were received from 100 percent of the addressees. The result in more concrete terms was 400,000,000 feet of urgently needed lumber in five weeks.

The Colonel chuckles about that telegram. An efficiency shark from the Army Service Forces protested to him that $500 in extra charges could have been saved if the telegram had been edited to eliminate what he considered unnecessary words. In reply the Colonel simply pointed to the unanimous response and the millions of dollars saved by getting out the lumber promptly.

CPA handles more than 30,000 items in various sizes and grades. In a single week it purchased as high as 700,000,000 feet, and for months on end purchases averaged $1,000,000 a day. May, 1942, was the record month, purchases hitting the billion-foot mark. Despite the fact that the construction program is virtually complete, the first eight months of 1944 have been the highest like period in point of volume—4,500,000,000 feet. The greatest item now is boxing and crating, only about one-eighth of the total going into construction.

CPA has to be as sure-footed as a mountain goat, leaping from emergency to emergency. Today's plans are not tomorrow's needs as military operations go. No one can tell until the shooting stops how much lumber will be needed to rebuild the dock facilities of a captured port. It took 50,000,000 feet, or 2,000 carloads, to restore the port of Naples for temporary use.

One of the most ticklish difficulties is meeting and loading convoys. It may not be known until the last minute where the convoy will assemble, and the lumber has to be concentrated there in record time. Fifteen million feet have been assembled within three days from distances up to 600 miles.

It takes 300 board feet to box one soldier's personal overseas equipment and fifty feet a month to keep him supplied. Thus, to send an army of 7,500,000 abroad takes 2,250,000,000 feet at the outset and another 4,500,000,000 to keep it overseas a year, exclusive of armament or construction.

Six and three-quarters billion feet may seem a picayune in a war fought with billions, but it is enough lumber to build 562,500 very respectable, six-room houses, more than twice the number we built each year of the decade ending 1940. Half a million new homes would be a sizable building boom.

Throughout its operations, CPA has endeavored to use, as far as possible, the existing channels of business. Its

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The Three Forks basin, suspended high between the main Great Smoky and Balsam ranges

THREE FORKS - - LOST PROVINCE OF THE GREAT SMOKIES

By TOM ALEXANDER

I WORKED slowly around a bend in the stream, my eye on an eddy across the current. Above me, in the shadow of a giant spruce, lounged another fisherman, his tackle idle. He watched me take a trout.

"A rainbow, eh?" was his friendly greeting.

"My second," I boasted. "We're a little high upstream for rainbows—but I've done pretty well with the speckled. I've got about a dozen. How's your luck?"

"All anyone could ask," he said contentedly, picking up his creel and exhibiting nine brilliant black, pink and orange speckled beauties—brook trout —along with a single rainbow.

My companion identified himself as a cotton mill executive who had found time in a busy life to fish in many waters —in the Rockies, in British Columbia, in Alaska. "But I have never seen anything more-appealing than this," he confessed, motioning to the wilderness surrounding us. "It is just about perfect, including the fishing." Then a slow smile broke over his face. "You see," he went on, "I don't fish just to catch fish any more. I'm content to sit and enjoy the beauty —and this just can't be beat."

This was twelve years ago, and we were fishing on the left prong of Three Forks in the Great Smoky Mountains National Park. The name "Three Forks" is used locally to designate the entire 20,000-acre forested bowl suspended high in the angle between the main Great Smoky Range and rugged Balsam Range. But it originates with a smaller place, an incomparable gem of sylvan beauty near the center of the basin. There, three woodland streams flow together in a crystal pool about thirty feet wide and from ten to twelve feet deep.

The water of this pool is so clear that every pebble in its bottom can be distinguished. Tall columns of spruce and

hemlock from the surrounding forest are reflected on its surface. Graceful brook and rainbow trout, large and small, drift lazily about, so well nourished that rarely will one show interest in the fisherman's artificial lure.

A few steps away stood a picturesque log cabin built of materials taken from the forest. The roof was of hand-split balsam shingles and the chimney was mud-chinked. Though slightly larger than a dog kennel, it was the center of a superb camp ground. The little clearing in which it stood had been gradually expanded over the years by hunters and fishermen, cutting trees for firewood. Horses had grazed here while their owners fished or hunted, and had kept down the briars. Apparently, however, they had found wild flowers distasteful for they flourished in amazing variety and profusion. Horsemint, orchids, cornflower and a host of others—their red, purples and yellows vieing with the pinks and whites of the rhododendrons and laurels of the forest.

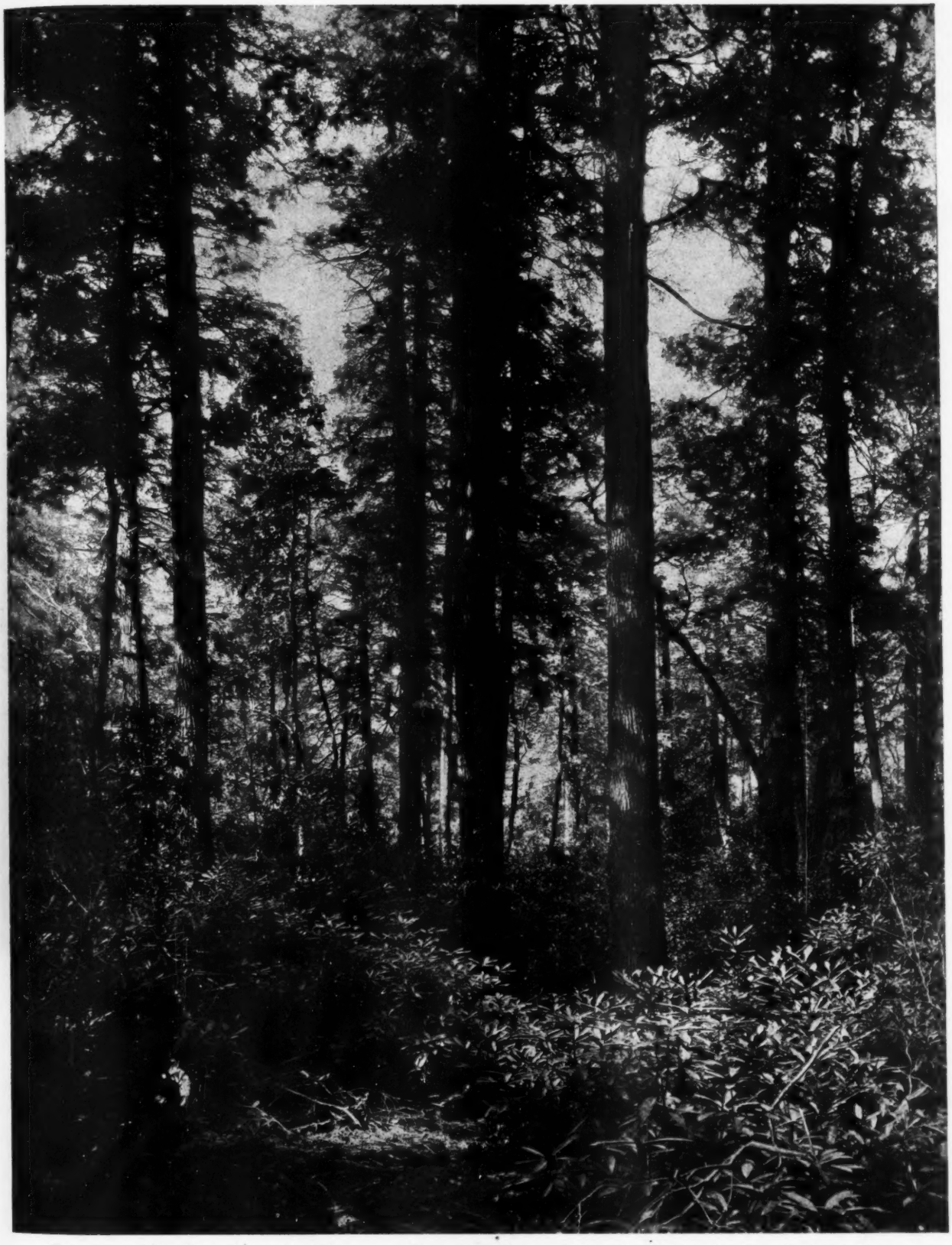
For seven miles above the pool and clearing right up to the crest of the ranges forming the bowl's rim, the forest was unbroken and the laurel understory virtually impenetrable. But below, the stream meandered quietly for several miles along an almost flat, shadowed basin floor. Then, five miles below the camp ground, the ridges forming the rim pressed together. Between them, seeking an outlet, the river began a swifter, more twisting course, dashing as if to escape from the bowl before the ridges could come entirely together and imprison them forever. Finally it entered a veritable gorge, tunnel-like because of the dense, overlapping forest, and with its bed choked with huge, moss-covered boulders. Among and between these the river dug out eerie, almost bottomless blue-green pools.

Abruptly the stream's dash through this black canyon ends. The ridges spread away from its channel, the forest gives way to a clearing and, suddenly, the stream is gently rippling through the flat open floor of the Cherokee Indian Reservation, laughing in the sunlight as though happy to be out of the wilderness.

The first trail into Three Forks twisted up through this gorge from the Indian lands below. Over it were brought at great effort the first rainbow trout fingerlings from which the present plentiful population of the river has descended. Later, a dim trail was worked out from Straight Fork, over Hyatt's Bald on the south rim and thence out Breakneck Ridge and down into the clearing. That horses at one time negotiated both of these trails is evidenced by ancient bits of leather from saddles or bridles, or rusty pieces of horseshoes found along the way.

Later, when the timber in the bowl

The name "Three Forks" originates with an incomparable gem of sylvan beauty near the center of the basin. Here, three woodland streams flow together to form a crystal-clear pool—a magnificent place to camp before the area was closed



For seven miles above the pool—right up to the crest of the ranges forming the bowl's rim—the forest is unbroken and the understory of laurel and rhododendron is now virtually impenetrable. All trails have disappeared

The old cabin is gone and the clearing has become a mat of briars and fallen trees. The stream, where both rainbow and brook trout could be taken, is now closed to fishermen

was to be appraised for condemnation of the lands for national park purposes, a rough and steep new horse trail was blocked in from Smokemont, the nearest white settlement, nine miles through the forest across two high ridges. Over this trail the supplies for the timber cruisers were packed in on horses. Another dim trail was run up middle ridge from the clearing to the rim of the bowl on the Balsams, and thence along this and the main Great Smoky range to Mt. Guyot. The cruisers used this trail as a baseline while estimating the timber in the bowl. Hikers later used it in ascending Mt. Guyot from their camp down on the stream.

Ten years were to elapse before I again met my fisherman friend, and things had changed, both to my friend and to the Three Forks. He was recovering from a nervous breakdown and Three Forks—well, the old log cabin was gone and the clearing had become a hideous mat of huge briars and fallen trees. The trails in the basin had practically vanished—reverted to the wilderness.

My friend did not know this as we chatted at his bedside about past experiences in Three Forks. "When were you last in there?" he asked.

"Not in years," I had to reply. "The stream is closed now."

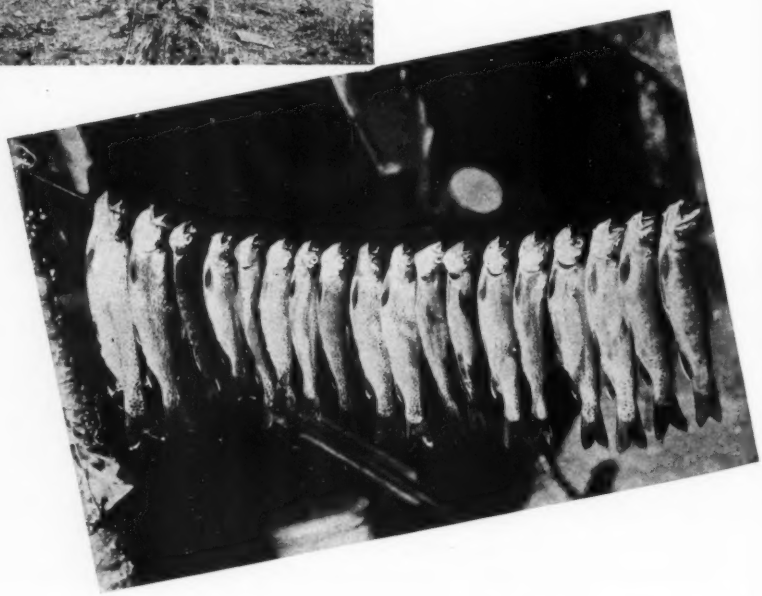
"Closed! But why?"—he jerked himself up on one elbow, "I don't get it. That was a fisherman's paradise. And it was the only stream I ever fished where brook and rainbow trout shared the same pools."

I explained that the stream had been closed by the National Park Service. The reason, as given to me, was that the park warden service was too small adequately to patrol it.

But this didn't satisfy him. "That stream was never patrolled before the Service took over and still there were plenty of fish," he said sharply. "It's too isolated and too rugged ever to be fished out."

"Nevertheless," I replied, "you can't fish there now. Another thing, it is my understanding that the Service intends to preserve it as a research area."

He was silent for a moment. "Well," he said at last, "even if the stream is



closed, I'd like to pack in there and camp for a spell. That clearing by the big pool is a perfect spot—and I'll be out of here before long. Let's go together this summer."

His anticipation was so great that I could not meet his eyes. "That's out, too," I had to say. "The Park Service has closed the whole basin to horses. Remember that rough trail in from Smokemont? Well, that was abandoned and is now obliterated. Understand it will not be rebuilt."

"Good Lord, man," he barked at me, "I thought that was the kind of use they wanted in the park. That's what a national park is for, isn't it—to give the people who pay for it outdoor enjoyment?"

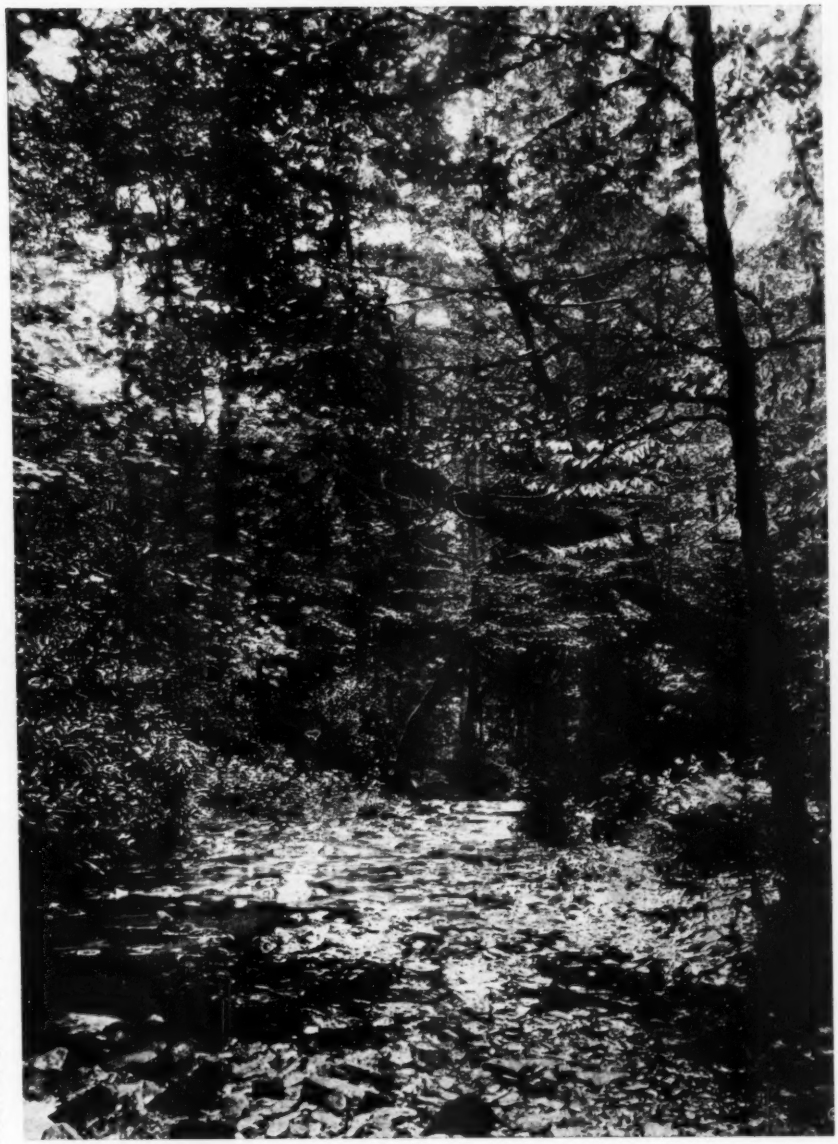
"The idea, I have been told, is that this section has been set aside for research—flora as well as fauna. The objection to horses, it seems, is that they might introduce grasses not native to the area through their manure."

"That don't make sense," he shot back. "If there is anything to that theory the damage has already been done. Horses have been going into Three Forks for years. If they brought in outside grasses they are still there. Grasses reseed annually, don't they?"

"They do on my farm," I replied.

He dropped back on his pillow and let his eyes wander out of the window to a cloud-flecked sky. "Well, if you can't, you can't," he said finally. "But is there anything to prevent us from packing in on our own backs? I used to be tough. We could camp light and stay in the little cabin near the pool."

"I'm afraid we can't do that either now," I had to tell him, following his gaze out of the window. "The old foot trails have gone the way of the horse trails. It's like this. Before the stream was closed, the foot trails were traveled enough to keep them open—fishermen even cut out fallen trees. Now they are so overgrown with laurel and briers and clogged with fallen timber that we would hardly be able to get through with packs—even if we could trace them. As to the old cabin near the pool—well, that's gone too. The clearing is a jungle of briars and down trees. Year before last I packed a famous woman botanist up to McGee Springs on Hyatt Ridge—that's on the rim of the Three Forks bowl. She wanted to go down into the basin and camp on the stream while she studied mosses and other flora, so we left the horses at the springs and started to back-pack out Breakneck Ridge. But we had to give it up. The old trail was no longer there, gone back to the jungle. I could have found the blazes and made it alone, without a pack, but the laurel and down timber was too much for a woman."



The question is—should wild beauty such as this be locked up for research, or should it be made accessible for public enjoyment as well?

My friend merely grunted. "That's just fine. What about the Park Service research men?—how do they get around in there?"

"I haven't heard of any of them getting around," I told him. "Nor have I heard of any results from research projects. They may have passed through, but frankly, I don't see how they could make it, with the trails as they are, if they tried to pack in enough camp equipment and grub to stay any length of time."

He shook his head. "Here's one case when two and two don't make four. A research area too inaccessible for the researchers. It wasn't like that in the old days. The year you and I met in Three Forks there were a number of scientists around, remember?

Yes, I did remember. Among them was Tom Burleigh, the ornithologist, who found his first Canadian cross-bills in the South at Three Forks. Later, he spent days in the area trapping small forest animals. A forester also was in Three Forks that year studying the unique forest conditions found only in the basin—high mountain spruce and balsam reaching optimum density in a comparatively smooth virgin basin, 4,500 feet above sea level. Usually these species occur in the Smokies only on the most precipitous upper slopes.

There were other scientists. And there were business men, photographers, fishermen and hikers—all attracted by the

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Regarded as the No. 1 lumberman in the Upper Peninsula of Michigan, Ford's timber holdings exceed half a million acres. He operates sawmills, a chemical plant and a woodworking shop—maintains twenty-four miles of logging railroad

HENRY FORD - - - *Lumberman*

By WILLIAM J. DUCHAINE

THROUGHOUT the world, Henry Ford is known as the pioneer automobile builder, whose vast industrial empire is now devoted to the production of all types of war materials to help the Allies defeat the Axis.

But in the Upper Peninsula of Michigan, Henry Ford is regarded as the biggest lumberman operating in this northern timber country. His company owns more than 500,000 acres of the finest stands of Norway pine and hardwoods to be found in the Lake States region. It operates sawmills at L'Anse, Pequaming, Alberta, Big Bay and Iron Mountain, augmented by a large chemical plant and woodworking factory at the last named place. At Iron Mountain, where until shortly after Pearl Harbor the familiar Ford station wagons were being produced, troop-carrying gliders are now rolling off the assembly line.

While some of Upper Michigan's pioneer lumbering concerns have gone out of business in the past year or so, Henry Ford has expanded operations, thereby contributing immeasurably to the war effort by producing forest products at a time when they are the Number 1 critical material.

When Mr. Ford decided to create a self-contained industrial empire, he acquired coal mines in Kentucky and West Virginia, rubber plantations in South America, and iron mines, limestone deposits and timberlands in Michigan's

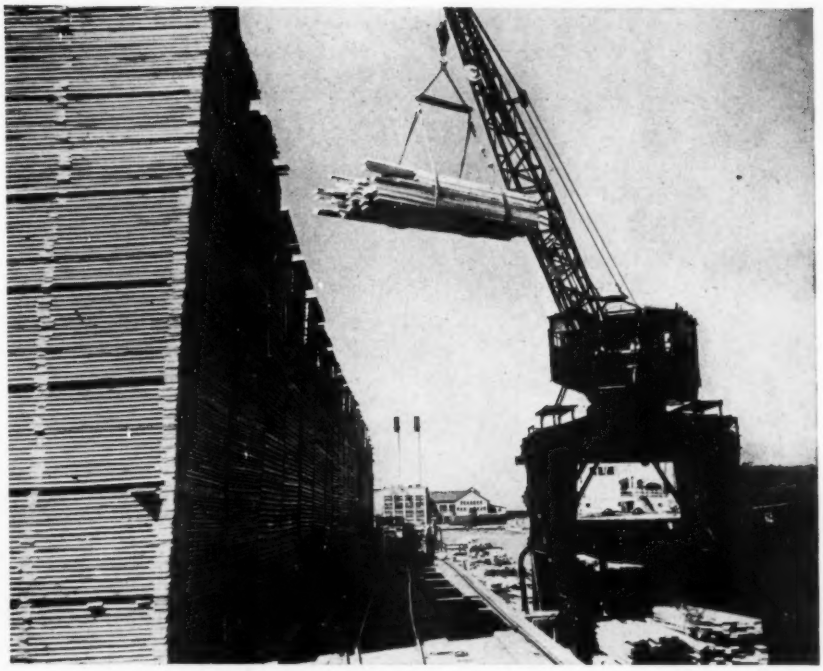
Upper Peninsula. Acquisition of timber was begun about 1920 when he bought all the holdings of the Michigan Iron and Land Company, comprising about 1,000,000 acres of land, some timbered and others containing iron ore. Just outside of Iron Mountain, he built a large, modern sawmill and later a woodworking plant, along with a new workers' community, named Kingsford.

Iron Mountain and Kingsford were boom towns during the twenties, when employment at the Ford plant reached a peak of more than 8,000 persons. Like every other industry in America, Ford curtailed operations during the depression thirties, but with the nation's economic recovery the Iron Mountain plant hummed again, turning out station wagons, charcoal briquettes, lumber, truck bodies and other wood products.

Then soon after December 7, 1941, the huge plant stilled most of its machines. Idle months followed, and woodworkers packed up their belongings and moved to war-booming cities. But by late summer in 1942, it was rumored that the woodworking plant would reopen to produce gliders, and it was a rumor that proved to be true.

For a month crews toiled in the buildings of the Iron Mountain plant. From one all machinery was removed; in another more than two-thirds of the equipment was dismantled; and in a third structure space was cleared for manufacture of huge boxes in which to ship glider parts. Then, men began marching back to the plant. Machines began humming again.

The first war order assigned to Iron Mountain was for the Waco CG-4A troop-carrying glider, with a total contract value of approximately $19,000,000. Since that time the glider program has been enlarged considerably with the addition of the CG-13 and CG-13A models, carrying a total contractual value of about $66,000,000 for the entire program.



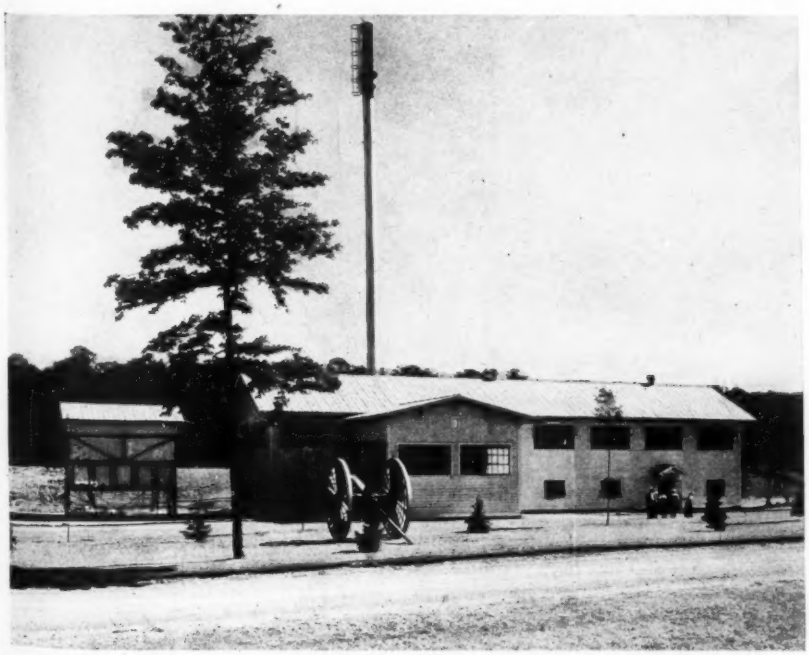
The sawmill at Pequaming, where lumber is shipped by boat to the lower Great Lakes region, will reopen soon, after a temporary shutdown

Peacetime equipment in one building of the woodworking plant is still in operation. It is used for making floors and tables for the Ford bomber plant at Willow Run, wood shelving for Ford war plants, wooden parts for jeeps, stakes and cargo truck bodies.

But that isn't all the vital war production at Iron Mountain. The Ford wood chemical plant, operating on a twenty-four-hour basis, is producing such important chemicals as ethyl acetate, a solvent used in quick-drying lacquers for trucks, tanks, jeeps and other war vehicles; denaturing grade methanol, used for making alcohol; chemically pure methanol, quantities of which are used in making plastics; and methyl acetone and acetate, solvents used in war plants.

Seventy-five percent of the nation's output of briquetted charcoal is produced by Ford at Iron Mountain. Because of its proximity to timber tracts and sawmills, this plant utilizes much hardwood scraps, cull trees and sawdust unsuited for other purposes.

What is known as the Ford-Stafford process is employed at the wood distillation plant. In the usual type of distillation plants an intermittent process is used whereby cord wood up to six inches in diameter is placed on small cars and



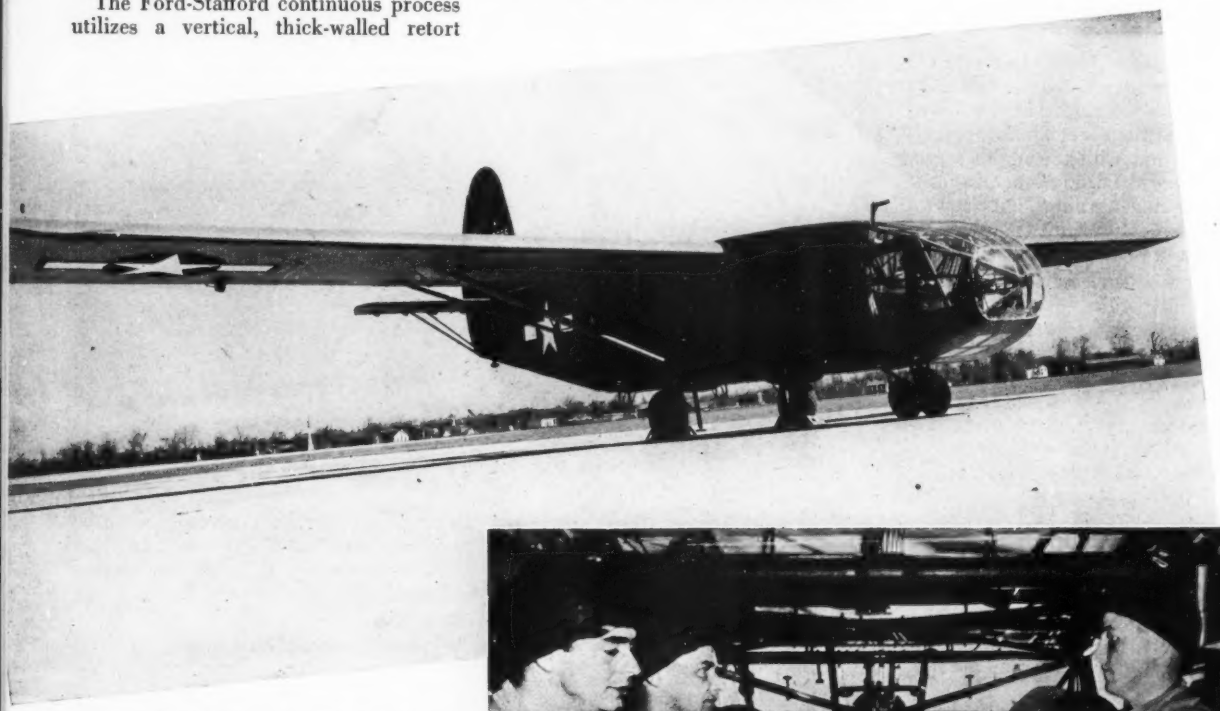
Ford built the model sawmill town of Alberta in a virgin hardwood forest —with attractive homes and gardens for workers. The mill is shown here

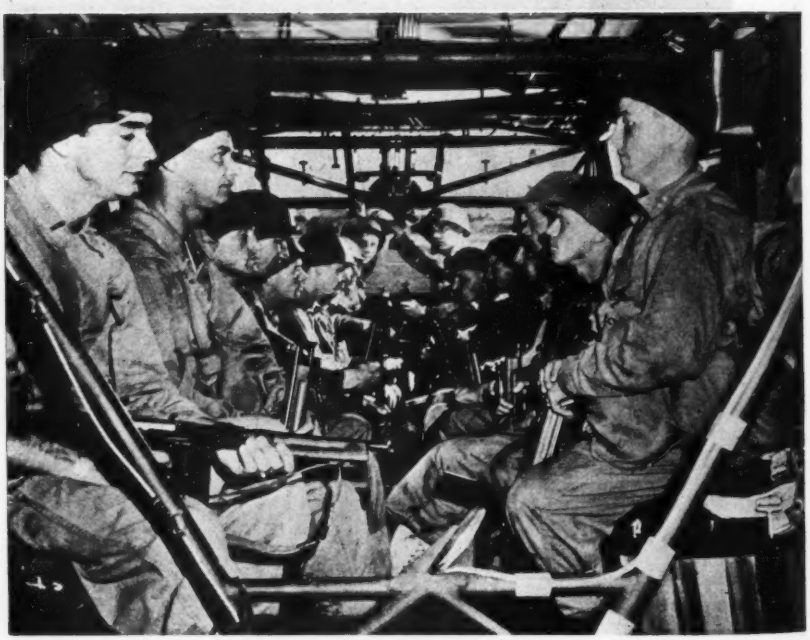
trundled into horizontal ovens. The walls are then heated, and as the wood slowly carbonizes the resultant vapors are drawn off. It is from these vapors that the various by-products are obtained. Under this process temperatures must be limited to around 600 degrees to prevent damage to the equipment. Time also is lost in loading and unloading the retorts.

The Ford-Stafford continuous process utilizes a vertical, thick-walled retort about forty feet high. The wood is chipped by running it through a grinder, then it is fed into the top of the retort, which is heated to 1,000 degrees. Charcoal, drawn off at the bottom of the retort, is compressed into briquettes, while chemical-producing vapors are drawn off from the top through condensers. Wood chips are added, as required, to maintain a level seven feet from the top of the retort. The maintenance of higher temperatures, it is explained, not only produces better charcoal by extracting more volatiles, but yields a greater volume of chemicals per ton of wood.

The Ford lumbering holdings extend over three large Upper Michigan counties—Marquette, Baraga and Iron. In 1922, the company built another modern sawmill at L'Anse, on the shore of Lake Superior, and a year later acquired nearby Pequaming, with many thousands of acres of timberland.

The depression gave Henry Ford an opportunity to test one of his pet ideas in the Upper Michigan lumbering region. Long a believer in the principle of providing double security by linking industry with agriculture, the automotive magnate created in 1936 the model sawmill village of Alberta, in the heart of the forest, ten miles south of L'Anse.





The Iron Mountain mill is now turning out troop-carrying gliders—the woodworking shop parts for the Ford bomber plant at Willow Run

Attractive homes were built for the mill workers along the banks of Plumbago Creek, each located on a lot ninety feet wide and 150 feet deep. Unlike the traditional company houses, the Alberta homes, although all a story and a half, vary in shape and design. Each is completely insulated, has attractively painted plaster walls, maple floors, birch woodwork trim and fire-resisting roofing.

There also are spacious garden plots, which Alberta workers tend while not working at the sawmill. The community is centered in a six square mile area of virgin hardwood. All logging in the area is done on a selective basis so that the forest will permanently sustain the mill.

Twelve families occupied the Alberta homes, and everything went along like an Utopian dream until the war came along to shatter it—but only temporarily. Its need for lumber sharply reduced after Pearl Harbor, the Ford company shut down at Alberta and Pequaming completely, and at L'Anse and Iron Mountain partially.

After Henry Ford resumed top command of his industrial realm upon the

death of his son, Edsel, he went in late August, 1943, to spend a brief vacation at the Huron Mountain Club, near Big Bay, on the Lake Superior shore. He took time, however, to visit his lumbering properties.

It is reported the elder Ford was saddened when he saw the gloomy appearance of Alberta and Pequaming, two communities in which he had always displayed deep sentimental interest. Anyway, shortly after his visit, official announcement was made that the small sawmill at Alberta would reopen immediately, and that operations at Pequaming would be resumed as soon as labor was available. Operations at the large Ford sawmill at L'Anse were also expanded.

For extra measure, Mr. Ford did another stroke of business while on his vacation. He acquired a flooring company at Big Bay, which had closed down. He announced the Big Bay mill would be modernized, and improvements made to the homes, hotel and other buildings in the community. When questioned about his plans, Lumberman Ford intimated he might eventually set up a chemical plant in Big Bay to utilize sawdust and other wood wastes.

Just this past summer Henry Ford further expanded his lumbering empire in the Upper Peninsula by purchasing another sawmill and an undisclosed acreage of land near Munising. This mill is now being modernized.

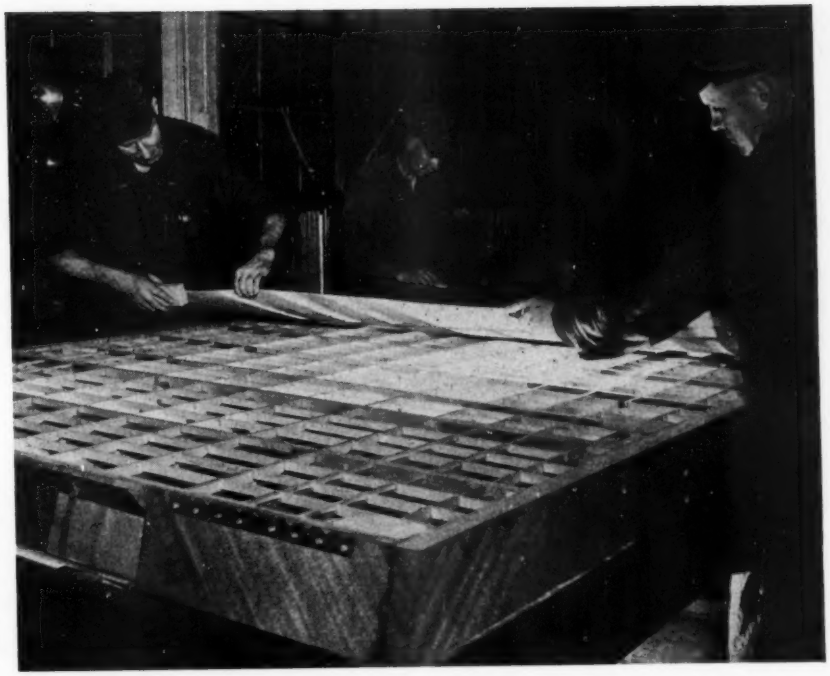
The industrialist subscribes to the principle of sustained yield logging. Several years ago the regional office of the United States Forest Service at Milwaukee prepared at his request a selective cutting plan for the company's timber holdings in the Upper Peninsula.

Until they entered military service, a number of trained foresters were employed to manage the Ford forest properties. At the present a tree-marking crew is in charge of George Tuttle of L'Anse, an experienced timber cruiser who long has been interested in scientific forestry practices.

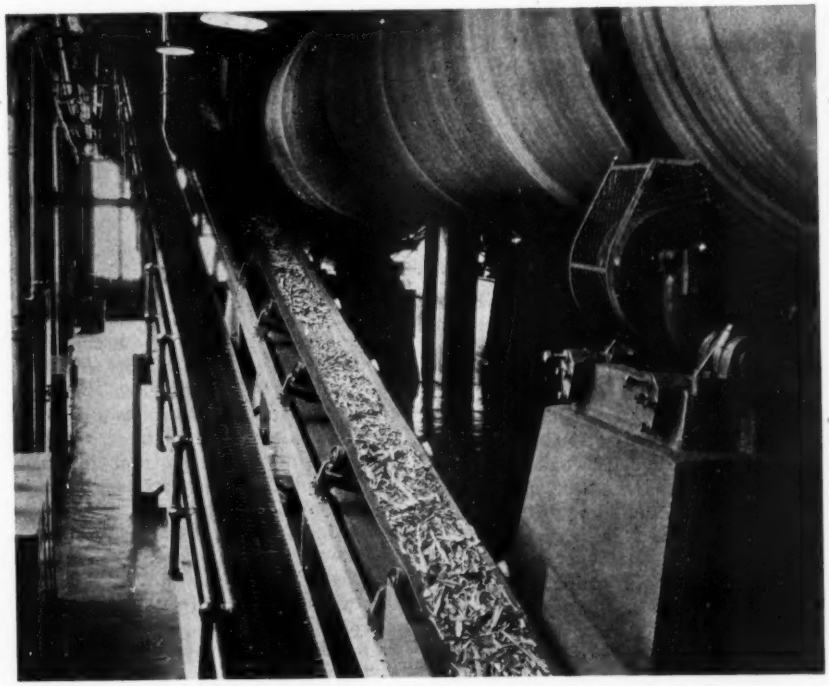
A plan of selective logging is being followed on the main Ford timber tract of about 100,000 acres of mixed hardwoods between L'Anse and Big Bay and to the south. Approximately sixty percent of the merchantable stock in this area is being cut. Clear-cutting is being done on some isolated stands.

The Ford company owns twenty-four miles of logging railroad, running eastward from L'Anse in the main tract almost to Big Bay. Three logging camps are operating along this line. Tractors and trucks are chiefly used in woods operations. Power saws have recently been introduced. Fire protection is furnished by the Michigan Conservation Department, but in every emergency Ford workers are called out to fight forest blazes.

It is stated that Henry Ford plans to operate for years in the Upper Peninsula timberlands. Consequently the old "cut-out-and-get-out" policy, pursued by oldtime lumbermen in the days when the Michigan pineries were thought to be inexhaustible, will not be countenanced in the Ford forests.



The hivelike floor of a glider. Framework of spruce and plywood contains more than 200 cells—will bear weight of almost two tons



Chips being "hogged" at the wood chemical plant, now operating round the clock to provide such war materials as ethyl acetate and methanol

HOLLAND'S MAN-MADE FORESTS

War Today Rages In and Around Woodlands the Dutch Were Creating When Columbus Discovered America

In developing their man-made woodlands, Dutch foresters have had an eye both to beauty and utility, as shown here at Limburg

By IR. T. W. L. SCHELTEMA

THE Dutch city of Arnhem will no doubt go down in history as one of the famous battlegrounds of World War II. For it was in the wooded hills around this picturesque capital of the province of Gelderland that British paratroopers, the tough "Red Devils," made their heroic attempt to turn the northern flank of Hitler's Westwall. But to the people of Holland, Arnhem for years has been a center of forestry activities in that country.

This beautiful city on the hills bordering the Rhine is in a region noted before the Nazi occupation for its fine forests, and the city itself boasted a model city park and forest in which was growing one of the rare stands of tuliptrees in that country. Also, one of Holland's outstanding fish hatcheries had been developed there. But more important, Arnhem is the home of the Netherlands Heath Society which has played a vital role in Dutch forestry. In fact, modern forestry in Holland was born with the creation of this organization in 1888. Its original purpose was to reclaim waste lands, particularly heaths, to maintain forests and other tree-planted areas, to construct irrigation and soil conservation works and to improve fresh water fisheries. Forestry was and still is a main concern of this organization.

Holland, of course, is not an important forest country—and what forests exist there today are man-made. This, in itself, is of interest, but more interesting is the fact that the Dutch were planting trees, were creating their man-made woodlands, when Columbus discovered America. Perhaps the most important modern Dutch forest—the Mastbosch Forest near Breda—was started in 1505. In the seventeenth, and particularly in the eighteenth, and nineteenth centuries, wealthy city folks began to acquire forested areas. They built comfortable country homes and enriched the flora with imported trees, many of which were obtained from botanical gardens and from people returning from the colonies. In this way esthetic and recreational considerations—for the estates were used primarily for hunting and fishing—entered into the appreciation of forests and these have now been thoroughly established as definite factors of Dutch forest policy.

There is ample evidence that in times remote Holland was a forest-covered country. The earliest preglacial woods were not unlike the present American woods. Prehistoric remains of the Pliocene and Tertiary periods include representatives of the tuliptree, magnolia, sequoia, goldenlarch and butternut, in addition to oak, birch, alder, ironwood, beech, maple, fir, holly, dogwood and other species familiar to the American landscape. Few survived onslaught by glaciers, however. The Stone Age woods were composed of pine, oak, elm, linden and hazelnut—with pine gradually disappearing to the east.

To Dutch foresters, these facts, revealed from pollen research and findings of tree stumps in peat, are vitally important, for they have served as a base for modern afforestation and reforestation. Species that once belonged to the native flora when the climate was not much different from the present one, have a good chance of growing there now—as the foresters have demonstrated.

At the dawn of history, when men first set foot on the coastal valley of the North Sea, formed by the Rhine delta, the forest was interrupted by grassy plains and regions grown in shrubbery. Wherever conditions were favorable, large trees had grown up. This was especially so on the higher soils composed of sand and loess with good drain-

age. Low shrubbery of willows, hazels and the like developed in bogs and along streams. In this wilderness primitive people brought their cattle to graze on the natural pastures of woods and open fields. Gradually they settled down to grow crops and cleared the parts of the woods best fitted for tillage.

To every head of a family was assigned a lot of tilled land, but the woods remained in communal possession. Gradually, as the need arose, more land was added for cultivation. At first this went on without restrictions, but in the early Middle Ages wise princes began to issue restrictions. Charlemagne in his famous regulation, *Capitularis del villes*, ordered clearing of forests which would give good land for agriculture, otherwise the woods should be spared.

The bridge at Arnhem which British paratroopers, raining out of the sky, attempted to seize. This picturesque city, in a region noted for its fine forests, was before the war the center of forestry activities in Holland. At left, Dutch war refugees

The village communities or marks, some of which still existed far into the nineteenth century, also laid heavy restrictions on the felling of trees. Much of the communal land then passed into private hands—acquired by noblemen or wealthy citizens. In the Middle Ages many pious persons gave land to monasteries and churches. In modern times the *stadtholders* owned large tracts of forests. This became state property with foundation of the Batavian Republic in 1795.

These changes of ownership had a great deal to do with the virtual disappearance by the twentieth century of the virgin forests. In 1835, there was probably but one stretch of original forest left in the country. This tract, near Apeldoorn, gradually changed into a bog, a perfectly natural process which would be repeated many times if the modern planted forests were not well drained. Then, with the growth of the

population, the forests, originally considered waste lands, gained in economic importance. Great quantities of wood were needed for building material and for ship construction to carry on a flourishing foreign trade.

Afforestation and enrichment of existing wild woods started as early as the end of the fifteenth century. It is definitely recorded that young beech trees were in 1490 imported from the Gooiland, a sandy glaciated region near Amsterdam, as well as oaks from Brabant, to be planted in the Hague Forest. The last remnants of this famous forest suffered greatly from a storm in 1911, and the Germans are reported to have finished it completely.

Modern Dutch forestry as we know it now and as we will know it again after the war, was really born, as has been stated, in 1888 with the organization of the Netherlands Heath Society, with headquartres at Arnhem. But another date worth remembering is 1899 when the Netherlands State Forestry Service was organized. In 1939, with a technical personnel numbering seventy persons, this office was in charge of all public forests, of the enforcement of forestry legislation and gave, moreover, valuable advice to public bodies and private forest owners regarding forest management. The Royal Decree of 1929, which regulates the functions of the Service, puts the protection of natural scenery in its hands. The public forests themselves contain nature reserves, which are supposed to be kept untouched.

During World War I, in the midst of national danger, the Dutch enacted their first law to prevent disappearance of scenic beauty. An emergency forestry measure prohibited the cutting of woods and tree-lined avenues if it involved loss of scenery. The forestry law of 1922 was of a more permanent nature. It created a State Board of Forestry with an advisory capacity in all matters of forestry, made owners of forests adjoining railroad tracts, as well as the railroad companies, responsible for fires caused by sparks, compelled public corporations and incorporated societies owning forests to manage them properly and authorized the state, municipalities and societies for the preservation of scenery to acquire forests by the right of eminent domain. In some cases the law goes into minute detail. It is forbidden, for example, to leave coniferous down timber in the woods from May 15 to August 1 to prevent the spread of destructive pine beetles.

The European beech is Holland's most important deciduous tree. Among conifers, Scotch pine ranks first

This law was the result of careful consideration and considerable debate and is the expression of the people's will. In 1912 an organization was set up for the specific purpose of preserving natural monuments, among them many forests. A law of 1928 had the same purpose. Under this, owners of estates with unusual scenery could claim reduction of certain taxes if they answered certain requirements and registered their property with the state. Unfortunately, it is no longer possible to preserve virgin forests within the boundaries of the Netherlands. But some forests in existence before the war were worth preserving from an esthetic or scientific point of view. Most of those are of the deciduous type, which had been gradually decreasing during the nineteenth century.

Scotch pine, *Pinus sylvestris,* is by far the most important timber tree in the Netherlands. There are also small stands of fir and larch, but these are of little economic value. Of deciduous trees the European beech, *Fagus sylvatica,* is the most important. Before the war there were fine stands of this tree in the eastern part of the country, particularly on the loess soils along the IJssel River and along the Veluwe. Perhaps the most famous trees of this species are found bordering the so-called Middoachter Allee, a thoroughfare near Arnhem. These, very likely, have been felled by the Germans. The birch, at home in the Dutch climate, has nowhere developed into large stands. It grows spontaneously in moors and on heaths. There are few oaks, the best known in the country being near Arnhem. These are called *Wodanseiken* (*wodansoaks* from the Germanic god). Large as they look to the average Dutchman, they are not taller than a good-sized American oak.

Because of the cool summers tree growth is rather slow in Holland. Forestry, therefore, has always been a long range investment. The most important forest products are mine timber, railroad ties, poles and firewood.

The plantings of willow trees along the rivers are an important asset in Holland. Willow twigs are extensively used for basketry and for matting to protect dikes. Poplars are planted in small copses, particularly in the province of South Brabant, near Eindhoven. Their wood is used by the most important paper industry and for making wooden shoes. Of late, forestry plays an important role in soil conservation. Where possible, dunes along the coast have been planted to hold sand together.

Largely through the efforts of the State Forestry Experiment Station at Wageningen, a number of new species have been introduced into the Dutch forests. Some of these have been very successful. American oaks, for instance, do very well on poor soils; the Japanese larch is another promising example; as are the Douglasfir and sitka spruce.

When the Germans invaded the country, Dutch forestry was well on its way. And while very little is known of how the forests fared in Nazi hands, it is reasonably certain that some fine woods have fallen victim to their war needs, or burned in battle action. Most of the present Dutch campaign is being fought in forested areas. But one can be sure that the liberation of Holland will be the signal for Dutch foresters to continue their useful and fine work and to proceed in making Dutch forestry a true expression of practical idealism.

DAVEY CROCKETT FIGHTS AGAIN . . . *With Trees*

By ALLEN F. MILLER

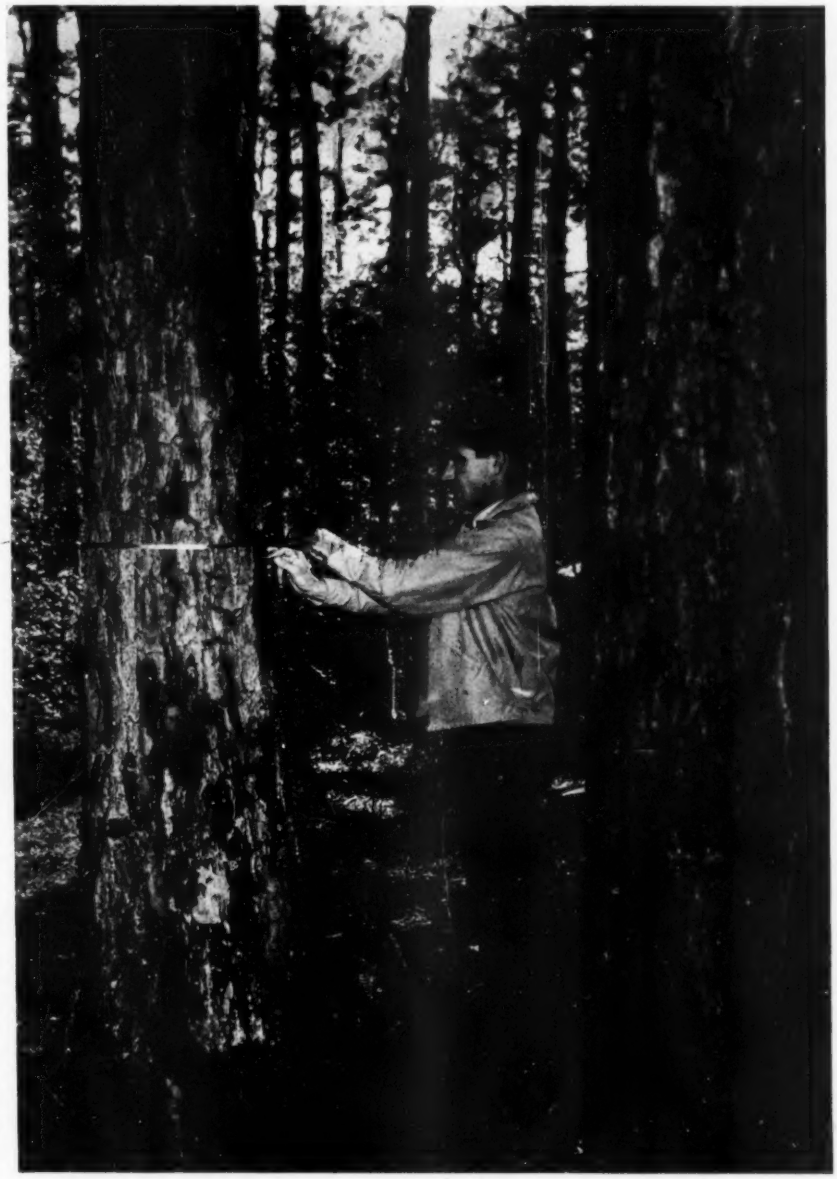
DOWN from Tennessee, a hundred and eight years ago came Davey Crockett and his band of volunteers to fight and die at the Alamo for American freedom. Their memory will live eternally in the hearts of Texans and Americans everywhere for their heroic stand against despotism.

Today, another war for freedom finds Texans in the forefront on every battlefield. And Texas timberlands are backing them up with millions of feet of wood to keep their supplies rolling forward. Prominent in this battle of materials is the Davey Crockett National Forest, a living memorial to one of the heroes of the Alamo. As the old frontier statesman, by his heroic stand, became an inspiration for future generations, so the forest named in his honor has taken the lead in showing how East Texas timberlands can be made to serve the nation in war and peace.

Though the virgin stands of Crockett's day have given place to a younger generation of pines, the intrepid frontiersman would feel at home in the forest which bears his name. The East Texas pine lands still extend from the Sabine River to the post oak prairies, broken only by isolated clearings as they were a hundred years ago. Local legend has it that the Crockett party camped at Pine Spring on their way to San Antonio. Quite possibly they did, for this spring, a public camp ground recently developed by the United States Forest Service, was a favorite camping spot on the old Spanish road, El Camino Real, which led from Natchitoches on the Red River to the Texas settlements. The forest-bred sharpshooter would certainly approve of the miles of rich woodland which now border the ancient "Pathway of the Padres," and the part these lands are playing in the present conflict.

Today East Texas resounds to the ring of the ax and the shrill scream of the bandsaws as Texas timber goes to war. Lumber for cantonments, for factory construction, lumber to house defense workers, boards for a thousand needs as America trains her armies before sending them abroad. Timber for docks and warehouses, ties for military railroads, poles for communication lines, wood goes abroad to every fighting front. In aircraft, in PT boats and invasion barges, in countless boxes, crates and containers for food and ammunition, wood from Texas serves our fighting men. The national forests of Texas last year supplied 32,272,000 board feet of stumpage for the war effort. Over 16,170,000 feet were harvested from the productive acres of the Davey Crockett.

In spite of the urgency of war needs,



Trees of the Davey Crockett National Forest are going to war—but on a highly selective basis. This pine is chosen because of an old fire injury

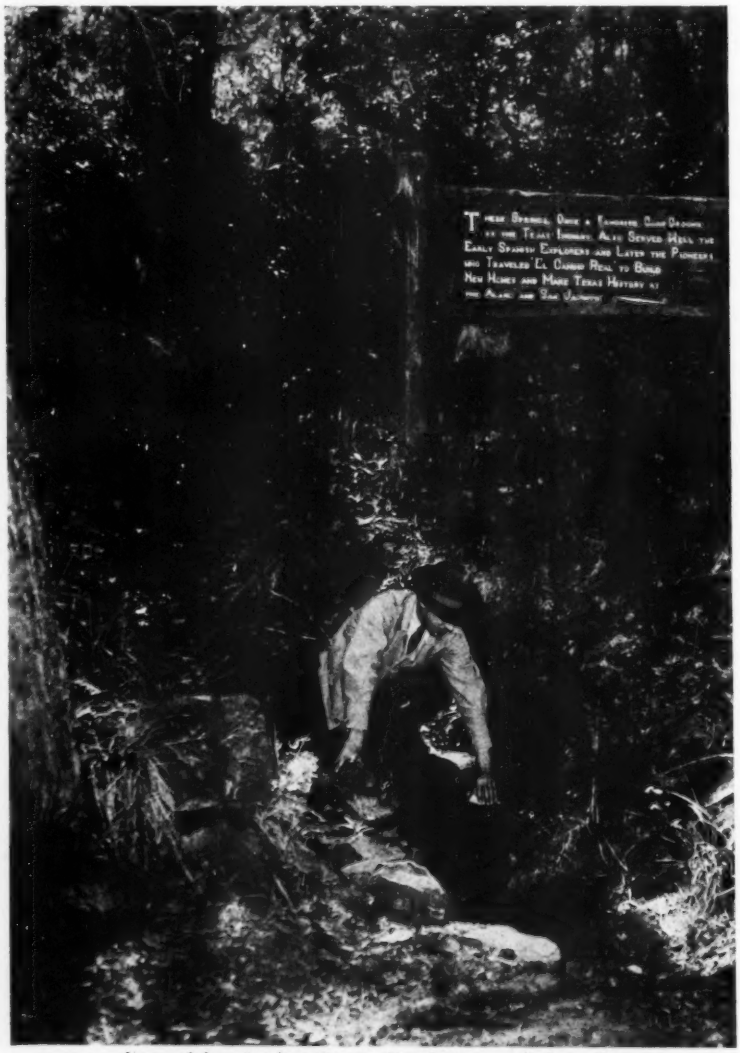
Davey Crockett timber is not being overcut. With all the wartime boom, cutting is still within the carefully calculated budgets which hold the harvesting in line with growth.

Armed with diameter tape and marking ax, tanned Ranger Albert E. Mandeville scouts his timbered acres to select the trees which should be cut. Now an adopted Texan, despite his birth in Pennsylvania and forestry training at Pennsylvania State College, Mandeville is top man on the Davey Crockett Forest. On his broad shoulders rests responsibility for all activities on the unit; construction work, fire protection, and improvement maintenance, as well as one of the biggest government timber sale loads in the South. His lean young face reveals the lines that come from responsibility for some 500,000,000 feet of growing timber in a region where the fire season is twelve months long.

With his staff of woodwise helpers, "The Ranger," as he is known from San Pedro Creek to Apple Springs, sees that every tree to be cut is measured, marked and branded. Each is selected for the benefit of future growth of the stand. The timber harvest comes from the trees which can't pay their way in growth. The old trees come out. Many ancient sweetgums along the stream courses have already gone to the veneer mills to be sliced to make the skins for airplane wings. Millions of feet of boards and planks and timbers have been produced from the yellow pine for which East Texas is justly famous. Much of the cut comes from damaged and diseased trees. A broken top or a slight rot infection usually means a tree that is slipping behind. That tree gets marked for cutting. Harvested now, it yields needed timber, while its removal gives new vigor to the sound trees which are left to grow.

"The best growth on the forest," says Mandeville, "is in stands which have been cut this way." He has figures to prove it. One tract, cut through seven years ago, has already grown as much wood as was taken out in the first cut. The ranger will wait a few more years before he cuts this tract again, to build up a heavier growing stock. But a return cut in ten years is definitely in the cards.

Permanent, sustained yield on this prolific forest is not a matter of obscure calculation in the future; it is a vivid reality, that is paying off a portion of the investment cost each year. Of course, no alchemy of Ranger Mandeville's protection or United States Forest Service management is responsible for all this remarkable production within the short period since the forest was established. These trees were well along in growth when the Forest Service took over. They were purchased to meet the need for a demonstration forest in this productive timber type; a forest where the results of conservative management could be shown without the long wait which is necessary when trees have to be grown from seed.



Legend has it that Davey Crockett camped at this spring on his way to the Alamo. It is now a public camp ground in the forest bearing his name

Most of these half-grown forest stands were purchased about ten years ago. The virgin timber was gone —some of the area was logged as much as forty years ago. On the forest one still sees the old foundation blocks which, long ago, supported the great steam engines that pulled the saws. In this area of shortleaf and loblolly pines, these early cuttings did not clear the land. The trees were of many sizes, and much of the smaller stuff escaped the ax because it would not make the wide boards and mighty timbers demanded in those days. These discarded trees, and their progeny, weathering frequent fires, have come through to form the stands we see on the Crockett Forest today. Untended, frequently overcrowded, many infected with rots from old fire scars and injuries, the trees were far from ideal growing stock, but almost everywhere there was a stand — something to work with.

Foresters in the past decade have been busy improving the 161,000 acres that the government bought. They planted up the few idle acres to slash and longleaf seedlings. With the help of the CCC they built the fire towers and telephone lines needed to cut fire losses to less than 200 acres a year. They

built a network of cheap but serviceable roads to serve the dual purpose of logging and fire fighting. By their careful cutting, taking out the faulty, leaving the sound and vigorous trees, they have gradually improved the timber stand, both in quality and in rate of growth.

By June 30, 1944, they had harvested $499,652 worth of timber from this land. Already the annual income exceeds the annual cost of administration. For the past two years the twenty-five percent of receipts which goes to the two counties in which the Davey Crockett Forest is located, has exceeded the former taxes on the land. Nor is this all. These men have not yet brought the Crockett Forest into full production. Thousands of acres of young stands are growing nearer to merchantable size. Each year new areas come of harvesting age, ready for the timber marker's ax. Mandeville looks forward confidently to a time, not more than ten or fifteen years from now, when his cut will be more than doubled. Already paying its way, the Davey Crockett National Forest is rapidly reaching a condition where it can fully serve the purpose for which it was established; to demonstrate that operation of southern forests for permanent, sustained timber production is a practical solution to the forest land problem.

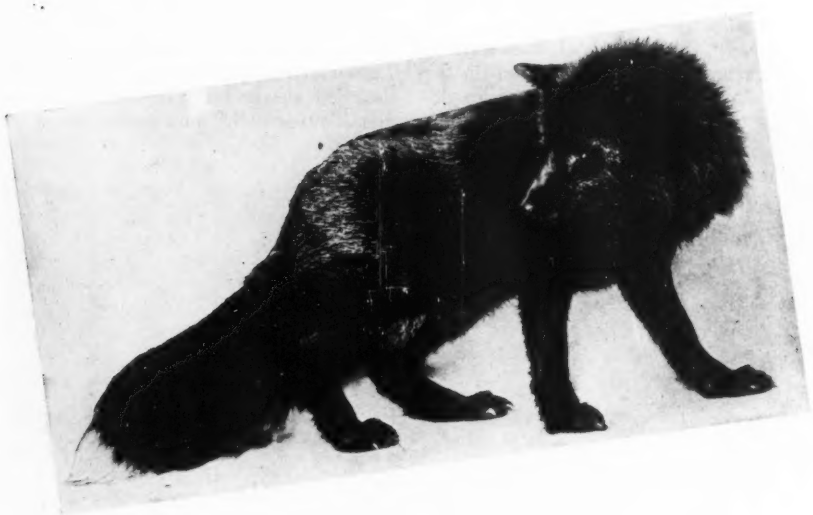
Already the effects of conservative forest management are being felt in the Davy Crockett area. Communities dependent on the manufacture of forest products can now look ahead with confidence, for the spectre of dwindling payrolls from exhausted timber supplies has been dispelled. Gradually there is being built up a population of woodsworkers, who no longer must follow the logging jobs from place to place, but who can confidently build homes and take permanent root in community life, secure in the knowledge that the raw material for their woods and mill jobs is going to be available forever.

Stabilizing the forest economy of parts of two counties is only one measure of the accomplishment of this new national forest. What may be its greatest service is reflected in the permanent forest enterprises that have developed around it. How much influence did this example have in convincing private owners that forestry was profitable? Ranger Mandeville modestly refuses to hazard an opinion. Ten years ago there were few operators in the Texas pine country who planned for a return cut. Today the first newsprint mill in the South grinds pulpwood from its own forest of 110,000 acres, which is operated under conservative cutting methods. There are seven large sawmills which operate fully 2,000,000 acres as permanent producing forests. These acres, too, back up our fighting men with boards and timbers and boxes, because conservative cutting has kept them productive for these days of war and the coming years of peace.

This hero of the Alamo, could he see the forest land that bears his name, would be content to know how well it serves, in war and in the coming peace, the state he gave his life to free.

As the old trees go off to battle, a vigorous young forest remains to grow more timber for the peace to come. Under favorable conditions, the amount of wood now being harvested should be equalled by new growth in seven years

CIVILIZING MILADY'S FURS



By

ROSS L. HOLMAN

Silver fox—valuable fur bearer

AS long as female hearts flutter at the sight of a fur coat, there will be a demand for furs. And many of the furs milady wears now and in the future originate on a farm.

For while the fur trade was a trapper's paradise a quarter of a century ago, it is today a farm enterprise. Many shy creatures of the wilderness have become farm livestock. A decreasing number are still being trapped but we are transplanting fox, mink, coon and other wild specimens from their woodland haunts to raise in our own backyards.

Fur farming has developed in continental United States since World War I. Before that it was little more than an experimental enterprise in this country or in Canada, where it was given most of its early trials. There are now 4,000 silver fox farms in the United States and 8,000 in Canada. In this country most of the ranches are found in the northern tier of states with fifty percent of the domestically-raised animals produced in Michigan, Wisconsin and Minnesota. The scope of fox production ranges from a few pairs kept as a sideline to other farm activities up to ranches that breed and pelt them by the thousands.

Mink are produced all over the country. They are raised in backyards in half dozens and on big ranches in multitudes. The fox and mink are the only two fur animals that have developed into what might be called big business dimensions, unless rabbits can be included in this class. Martens, muskrats, raccoons, chinchillas, and others are produced in very limited numbers.

In some respects the war has hit the fur trade pretty hard—not in the way of sale prices but in feed supplies and manpower difficulties. Something like twenty-five percent of the prewar volume has vanished and many of the larger fur farms have gone out of business. Not being classed as an essential industry, the larger ranches have had a difficult time keeping skilled help. The feed consists mostly of meat, cereals and vegetables—and these have been pretty heavily bottlenecked out of the fur farmer's reach.

But as a postwar enterprise it offers a possibility for reasonable profits and a colorful career.

While production on a large scale is uncertain at this time, the war doesn't offer many obstacles to the man who would like to start now. He should have no trouble finding enough feed for a small business and labor wouldn't be a problem if he starts with no more animals than he can look after himself.

There was practically no fox farming in this country at the close of the first world war. As late as 1923 only 6,000 ranch pelts were produced and sold in this country. At the beginning of World War II production had soared to well over 400,000. Mink production during the same time was almost as spectacular, while the breeding of other

Being disposed to fight among themselves, mink are housed in separate pens. While this increases the cost of raising the animals, it pays

fur animals was past the experimental stage.

There are several kinds of foxes, but in the domestic field the silver fox, a variety of the red fox, dominates the show. On the average its pelt is exceedingly valuable, and prices run from $25 up to the sky limit. One of the largest silver fox farms in the world is owned and operated by the Fromm Brothers at Hamburg, Wisconsin. On this ranch are 50,000 animals fenced off in forty-acre tracts.

One very successful medium-size rancher is Miss Eve Spalding whose farm lies on Palmer Lake in Colorado. Miss Spalding studied the habits of these animals in Alaska and Canada before embarking on her enterprise. She bought seven pairs of silvers ten years ago—today she has over 600.

The fox normally chooses only one mate and fox breeding has to be figured in terms of pairs. Each pair usually mates about February. When the blessed event occurs two months later the litter will average around four pups, though the number varies.

Foxes are usually raised in kennels on premises surrounded by a high wire fence. This is sunk into the ground two feet to keep the animals from burrowing under. Many breeders use barrels for kennels and provide two for each pair. In their wild state it is mother fox nature to move her young from one den to another for safety. Under domestic conditions the opportunity to swap from one barrel kennel to another satisfies this instinct.

Foxes are fed horse meat or different kinds of other meat scraps plus cereals and vegetables. When the newly-born pups arrive both the male and female watch over their young with a tender devotion. In the wild when the mother refuses to leave her young, the male will go out and make every sort of sacrifice to bring in food for his family.

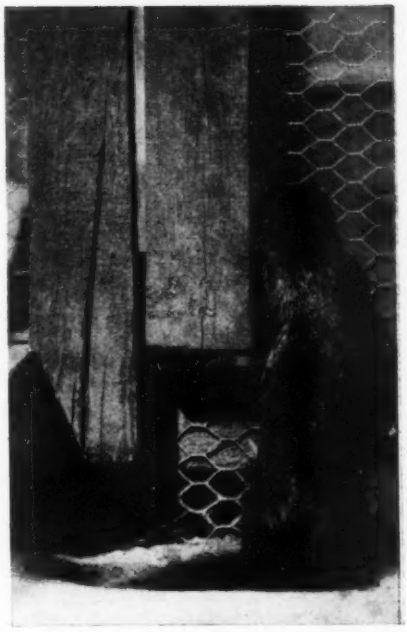
While the silver fox now runs high in the number of farm animals produced, the mink has also become a widespread domestic creature. It is estimated there are 3,000 mink farms in this country. Mink eat much the same kind of food as foxes. Breeders whom the writer contacted in different parts of the country say that it costs from $4 to $8 to raise one of these animals to maturity. For example, there is Charles Knepper of Somerset, Pennsylvania, who sells about 100 pelts and fifty breeders a year. His production cost is $5 a mink.

One of the larger breeders is the Saxton Mink Ranch at Bemus Point, New York, which keeps 3,500 of these animals. Harry Saxton reports that pelts which averaged $18 each before the war bring $30 this year, with a cost of production that ranges from $5 to $8.

One advantage this animal offers over the fox is that mink breeding doesn't require more than one male to each eight or ten females—and this cuts down quite a bit on the cost of family upkeep. Their rate of production per female is approximately the same as that of the fox—an average of about four to a litter.

One thing that adds to the expense of raising mink is that each animal has to be kept in a separate pen as they are mean about fighting. Their pens are usually made of wire. Each has a nest box made of lumber at one end.

When a kit is first born it is exceedingly small, weighing only about one-eighth of an ounce. Its weight doubles, however, in forty-eight hours and in six weeks it is about the size of a red squirrel. In six months it is grown and has a length of around twenty inches.



Exceedingly small at birth, the mink matures in six months

A few years ago Larry Moore, a Wisconsin breeder, made a good profit with a rare new specimen known as the "silverblue platinum" mink. There are only a few producers of this breed and it has only recently developed to where the first auction of furs was held in January. At this sale 2,500 pelts sold for a total of $375,000. However, this breed is becoming more common and at some of the recent sales the silverblue pelt has not had such easy selling.

While the muskrat can be grown successfully in captivity it has not yet been found generally profitable. There are a few producers scattered throughout the country, but for the most part, trapping is still the best method. For another thing, when fur buyers figure on muskrat pelts they don't write dollar marks in their checkbooks in quite as big denominations as they do for fox and mink. The skins bring around a dollar or two each.

Tom Lamb, a Canadian producer, has made a good business of growing these rodents on marshland under semi-wild conditions. He obtained permission from the Manitoban government to stock 135,000 acres of marsh on the Pas, 600 miles north of Winnipeg, and his success with this project suggests a similar profitable use of worthless marsh in this country.

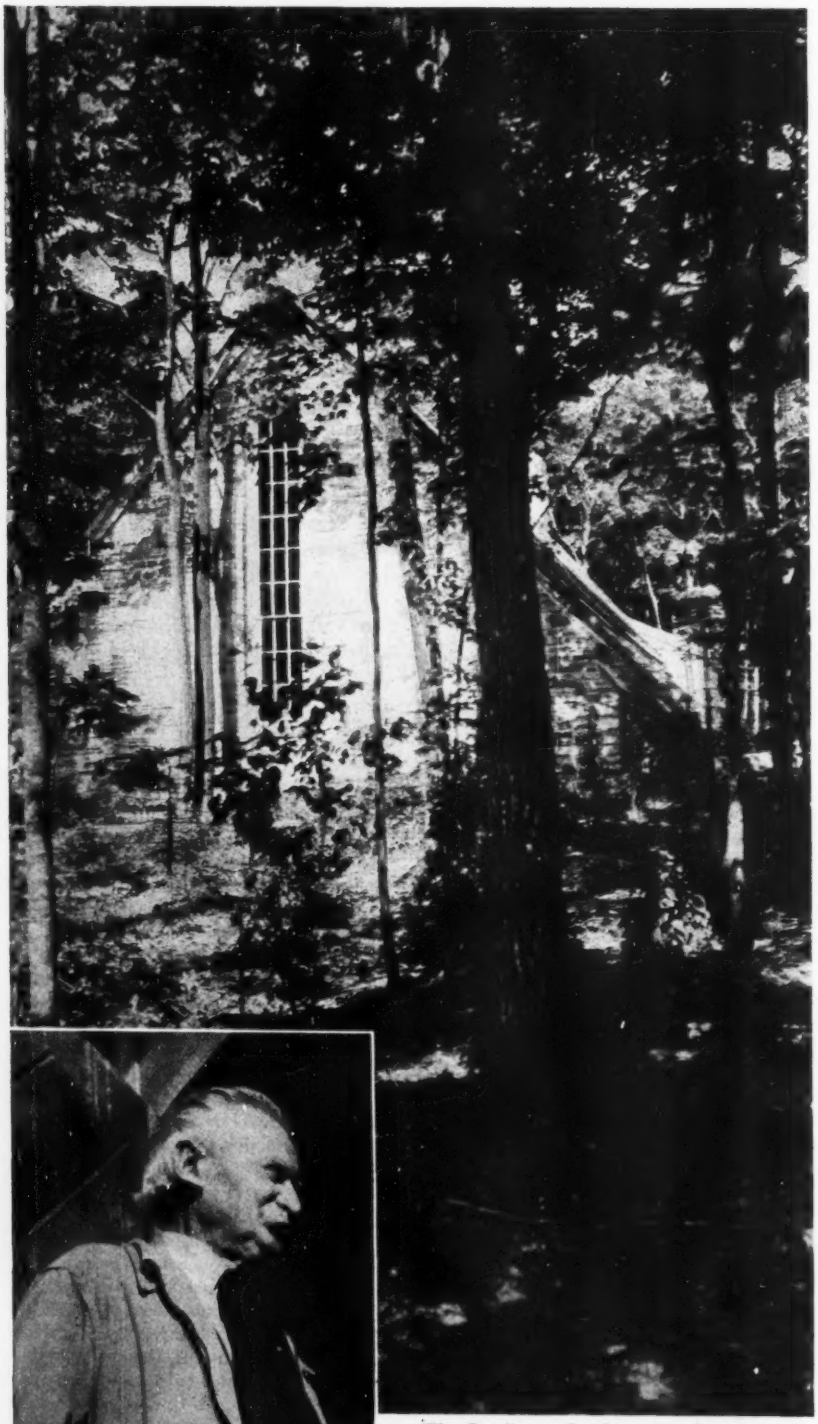
The muskrat usually makes his house

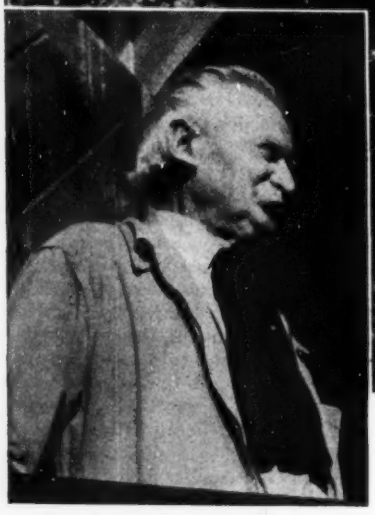
(*Turn to page* 574)

Foxes are raised in kennels surrounded by high wire. Their diet includes horse meat, cereals and vegetables. These are red foxes

LANDSCAPING AS A "LIVING ART"

By CLARA HUSSONG





The Studio perfectly set—where natural beauty of the native landscape has been preserved. Jens Jensen declares landscaping is living art only when man and nature work together

"AS a living art, landscaping is still in its infancy, understood by few. It is waiting to be developed."

The speaker was Jens Jensen, famous landscape artist. He was showing us "The Clearing"—his home, school and workshop—near Ellison Bay in Door County, Wisconsin.

"Until we have learned to love our native soil," he continued—"until we see the beauty of our native landscape and have learned to fit our lives into its infinite harmony, we cannot produce an art of landscaping that is worthwhile."

Landscaping becomes an art when man and nature work together, he said. Otherwise it is just a branch of architecture—and "architecture is hampered by rules, forms and designs." Landscaping, if it is to be an art, must be free to express what is fitting for each environment. America is made up of many little worlds. Each is different from the rest. It is the landscapist's work to develop parks and gardens that are part of these worlds, but the work must be done so adroitly that parks and gardens disappear into the heart of nature, of which they are a part.

Mr. Jensen came to America from Denmark more than a half century ago. His original ideas in his chosen work made him internationally known during the years that he practised landscaping of public and private grounds. He chose Ellison Bay as his "little world" because it was a quiet village surrounded by the beautiful hardwood forests he loves. The village had neither too much outside "culture," nor too much sophistication for him.

One who is not familiar with Mr. Jensen's principles in regard to landscaping might expect to find him living in a stately mansion on a pretentious estate of "pompous" gardens, as he calls them. Jens Jensen isn't that kind of a landscape artist.

To reach "The Clearing" you take a little road leading into a field a short distance down the village highway and drive through a wood of maple, birch, beech, basswood and an occasional white pine. The road dips and curves as it follows the contours of the land, and each curve unfolds a new vista—arborvitae and birch springing from moss-covered rocks, a soft boggy spot overgrown with dogwood and willows, or a dim aisle flanked by tall trees.

Suddenly you see sunshine filtering

An Interview With Jens Jensen, Famous Landscape Artist

Hepatica, lovely woods flower, grows profusely between the slabs of granite in this natural garden

through the trees and abruptly you come to "The Clearing." The main building of limestone, with its pointed roof, suggests a temple, but the large buttresses at the side give it a sturdy, workday look. "The Clearing" is dotted with clumps of trees, wild shrubs, grasses and flowers growing among outcroppings of limestone. A wide view of the bay is afforded from the top of the bluff.

In the workshop there are desks, chairs, pictures on easels, blueprints on tables, and a workbench with vise and other tools. All the windows frame beautiful pictures of the outdoors — a carpet of grass and clumps of wild flowers, a tangle of shrubs, tall trees.

"Do you see these trees?" asks Mr. Jensen, pointing to a maple and basswood growing just beyond the tall window. "The building was to have been ten feet longer but I couldn't part with those trees."

To him, trees and other plants have individualities, quirks of character more significant than just simple soil preferences. "Every plant has a message it can give only when growing in the right surroundings. Some plants, to be at their best, need association in a small colony or group. Others, like pines, need the company of multitudes which together form carpets of needles on the forest floor. Some trees, such as the cottonwood, speak more forcefully when standing alone—but not many trees like to stand alone.

"Lowlands, rocky cliffs, prairies, swamps, sand dunes and rolling hill country each has plants peculiar to its soil and topography, and it is a mistake to force any of these species to grow in habitats other than their own. Such practices tend to make the world commonplace and to destroy the ability to unfold an original and beautiful landscape out of home surroundings. Only by developing the beauty of each little world can we make life rich and the earth beautiful."

Outside, last year's leaves, fallen twigs and other natural forest debris cover the ground. When a branch on one of Mr. Jensen's trees is injured or broken it is not cut off, but allowed to remain on the tree until it drops, and where it falls, it stays.

In the wood beyond "The Clearing" grow birch, maple, basswood, beech and ironwood. Among the wildflowers there are trilliums, hepaticas, bluebells, columbine and bellwort. Wild raspberries, roses, elderberries, sumachs and Juneberries also grow in "The Clearing," and with the casual clusters of trees they bridge the transition from clearing to woodland.

Asked about evergreens, Mr. Jensen replied that he liked them in their place. "It is only that evergreen planting has been overdone in landscape work. Junipers, arborvitae and spruces are being planted where they do not belong, where thornapple, wild crab or oaks should grow. Each plant has its fitness and must be placed in its proper surroundings to bring out its full beauty. Therein lies the art of landscaping."

Pointing to the arborvitae in the high limestone bluffs facing the bay, he said, "The arborvitae belongs here. They have stood here for many years—some from six to seven hundred years. They mean something. They speak. They tell of courage and resourcefulness, the ability to withstand cold blasts from the bay, to find sufficient soil to root and grow on the cliffs. When they are planted about houses in regions where they are not at home, when they are massed close to a house or clipped and trimmed into idjotic shapes, they mean nothing. They can give no message because they are not in rhythm with their surroundings.

"Some people say they prefer evergreens to deciduous trees because they are more beautiful in winter. Have they never seen a hardwood grove lit up by the afterglow of a winter sunset, soft light reflected on the silvery lacework of the beeches and the grays of the maples? Or a stand of white birch under a winter moonlight?"

To introduce foreign species to home grounds is not only foolish, in Mr. Jensen's opinion, but also dangerous. He tells of seeing a Japanese bittersweet, planted for its quick growth, twining itself around an oak and killing the mighty tree by strangulation. In the same way the yellow honneysuckle, imported from Japan, kills the native flowering dogwood and redbud in the South.

Preserving what we have for posterity, not only individual species, but natural landscape as a whole, is a project which Mr. Jensen believes needs attention now. Tracts of land which are still relatively untouched by man's improvements should be made into parks and sanctuaries. Areas up to 100,000 acres in extent, he thinks, are not too large for a state to plan for, and they may include prairie-lands as well as woodlands, because these, too, are the gardens of our countrysides.

He hopes that some day we will have many of these wild areas which will not be exploited, improved, or commercialized but will remain natural wilderness sanctuaries where, hundreds of years from now, Americans may still see our country as the pioneers found it.

In the art of living, as in the art of landscaping, Mr. Jensen believes that man should adapt himself to his surroundings, instead of changing the surroundings to suit the man.

"I believe that every community in America," he says, "has within it everything it needs to create a culture fitting for that community. We don't need to borrow ideas on the arts and crafts, methods of work or modes of living from another country. The environmental conditions of the physical world exert a certain influence on those living within it. This influence is found in the character of the people and is expressed in their economic and spiritual life. We must learn to live in harmony with that influence."

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HOME WOODWORKER IN WARTIME

By ROBERT SHOSTECK

THE home woodworker, who before the war was accustomed to buying choice grades of finished lumber from a neighborhood lumber yard, today finds it virtually impossible to obtain the desired species, grades and dimensions required for his particular hobby. This shortage arises because lumber is now on the critical list and nearly all lumber output has been assigned for essential war purposes.

Home craftsmen are thus faced with a challenge to use their ingenuity and resourcefulness to obtain needed materials without in any way interfering with the war effort. They feel that it is unnecessary and unwise to "close shop" for the duration since their hobby contributes in a modest way by its morale-building value and the sizeable extent of their output in toys, furniture, gadgets and small structures.

The writer first became aware of the critical situation in the retail lumber market when he attempted to buy a small quantity of white or ponderosa pine. He was informed by his neighborhood lumber dealer that "these softwoods were out for the duration." Inquiry among fellow woodworkers and other retail yards elicited a similar story.

A lengthy "ways and means" session one night on the part of a group of neighborhood home craftsmen resulted in ideas which were translated into action and effected a substantial replenishment of a dwindling stock of lumber. These ideas are passed on to the home craftsmen readers of AMERICAN FORESTS who are faced with a similar situation.

There are two relatively untapped sources of supply of nearly all of the species used in woodworking. One is the used lumber and furniture market. The other is the native forest trees, both dead and living, which are available in most areas. The writer has exploited both these sources, so can write from practical experience.

A used lumber market can be found in most large cities where extensive demolitions have taken place in connection with slum clearance or in areas condemned for military or industrial use. The home woodworker can buy interior trim, shelving, cupboards, stairways and exterior finish at a fraction of the price of new lumber. Such lumber is always fully seasoned; the only disadvantages are nails, nail holes and old paint or varnish. The usual species obtainable include the commercial pines, white oak, fir, cypress, redwood, yellow poplar and chestnut.

In smaller communities, the used furniture market is more often available. But the home craftsmen must expect to pay somewhat more for the usable lumber than in the case of used building trim. From such furniture he can get most of the hardwoods and a few softwoods. The best buys are badly battered (in front) cupboards, bureaus, cabinets, bookcases, pianos and tables. A large bureau with scratches, missing hardware and broken veneer is often obtainable at a very reasonable price. The greater portion of the lumber can be salvaged and put to good use. Such pieces usually have hardwood top and sides, and softwood (pine or yellow poplar) drawers and back.

The best buy is at an auction where badly-marred pieces often go for fifty cents or a dollar. Another good source is the newspaper "furniture for sale" columns.

Under the heading of used lumber should be included crating and boxes which are often available. While the cheaper grades of lumber are ordinarily

Old stairways, doors and window frames in wrecked buildings offer the home woodworker much of the lumber he needs today

used, the home craftsman should not overlook the desirability of such material for small toys and for certain parts of furniture.

In addition to these sources of finished lumber, the home craftsman should also investigate the local supply of standing timber. The writer has had no trouble obtaining usable timber from the following sources: Dead chestnut by permission of landowners and live hardwoods from areas requiring thinning, either by purchase or gratis from the owner. The usual procedure is to take an afternoon's walk along a country road, spotting sound trees of the desired species and diameter. The next step is to negotiate with the owner or authorities for cutting such trees pointing out, in the case of thinnings, the good forestry aspects of such action. A tree from eight to twelve inches in diameter is readily felled, trimmed and cut into short length logs which can be placed in an automobile, wagon, or truck and hauled to a mill for cutting. And branches from three to six inches in diameter should not be overlooked. These are ideal for certain types of lathe work, especially for lamps, spindles, table legs, and toys. The price for cutting and planing one-inch boards is usually a fraction of the price paid for finished lumber—if it were available.

The green boards must, of course, be air seasoned. This requires special care if undue checking and warping are to be avoided. The important factors in seasoning lumber out of doors are temperature, humidity and circulation of the air. Under optimum conditions of high temperature, low humidity and wind, the average pile of lumber will be seasoned in about two months; under adverse conditions six months or longer might be required. The active drying season through most of the country is from May through September.

The two evils of wood seasoning—checking and warping—refer to the splitting and loss of shape in the boards which occur during drying. These conditions can be prevented or held to a minimum by observing certain rules. The home craftsman should avoid uneven drying by exposing practically all the two surfaces of each board to the circulating air; he should avoid excessively rapid drying by placing the pile of boards under a roof, or a makeshift roof of scrap wood; end-checking may be kept to a minimum by coating the ends with paint, asphalt, or paraffine; and when possible, species not subject to marked checking and warping should be used.

Even if the craftsman possesses but a few dozen boards it is advisable to follow these suggestions and to pile the lumber in exactly the same manner as in a lumber yard. Stickers an inch thick and spaced about three feet apart should separate each tier of boards, and several inches should separate each board.

A simple method of determining when a board is sufficiently seasoned is to cut a one-inch sample along the grain of a six-inch wide board. This one-by-six inch sample is placed on a stove or radiator for forty-eight to seventy-two hours. The shrinkage should not exceed one-eighth of an inch for hickory, hard maple and white oak, or one-sixteenth of an inch for cedar, white pine, or redwood. Most other species should show shrinkage between these figures. Another simple method is to weigh a particular sample board at two-week intervals until no further loss in weight is noticed.

The home craftsman can avoid disappointment in his seasoning operations by utilizing species which are relatively free from warping. Some of these are cedars, cherry, chestnut, pines, yellow poplar, redwood, spruce and walnut. Species which warp markedly and should be avoided include beech, soft elm, redgum, sycamore and tupelo.

Used furniture—bureaus battered and marred, shelves and cabinets also supply good, seasoned lumber

The wartime shortages of commercial lumber and the resulting necessity for improvisations provides the ideal opportunity for the home craftsman to experiment with uncommon non-commercial species. Many of these have desirable working properties and unusual coloration, figure, or grain. A few suggestions include dogwood, elm, hickory, holly, magnolia, persimmon, sassafras and sumach. The properties of these and many other species are described in several available publications listed by the United States Forest Service.

Or, he can sometimes buy direct from the owner sound trees of desired species—for the right kind of thinning is good forest practice

A TOWN FOREST FOR TROY

How a Maine Townspeople Solved an Economic Problem by Returning Tax Delinquent Farm Land to Forest

By BRUCE B. MINER

THE association between the words "wooden" and "Troy" is familiar even to those whose knowledge of history is a mixture of fact and fiction, legend and half-remembered dates.

But this story has nothing to do with a horse, wooden or otherwise. It concerns a group of down-east Yankees in Troy, Maine, and their method of converting tax-delinquent land into a profitable town forest. Only the opening chapter can be written now, for the experiment is little more than four years old. But it is a chapter that promises much, both for Troy and for other towns faced with similar problems.

Troy is no metropolis. The 1940 population was 582 compared with almost 1,500 in 1850. Much of its land is not suited to crop production under present-day conditions, a fact suggested by the steady decline in population. The town is typical of many in central Maine, a beautiful place in which to live if you can find some way to make a living. But no scientific land-use analysis is necessary to prove that most of the land should be in trees.

There are men and women in Troy who realize that all is not for the best when farm after farm is abandoned or pays no taxes. And they did not propose to wait for an Act of God, an Act of Congress, or a wealthy summer resident to solve their problems for them. They provided the initiative and foresight necessary to translate ideas into productive town property.

Some of these men got together as a local land-use committee. A town forest, created from tax-delinquent land owned by the town, seemed to have some pos-

The first tree (above) for Troy's new forest was planted on a chilly May morning in 1940. Four years later many thousands (below) covered the barren acres—and thinning operations on farm woodlots acquired were paying dividends, which the people of Troy are investing in War Bonds

sibilities. They called on the University of Maine for technical help. When town meeting time came in March, 1940, the citizens voted to create a town forest area, following the recommendations of the land-use committee.

There was snow on the north slopes and the wind off Penobscot Bay was cold on the day in early May of that year when the first planting was made. The planters ate lunch beside a half-filled cellar hole that marked a house site of many years ago. They could not help but reflect on man's full cycle of endeavor as he tried to make a living from this bit of land.

First the land was cleared, and a home was erected on the stout granite foundation that still stands. Then came the era of farming, at a time when this farm could compete with others. But the railroad went through another town, the

Townsfolk of Troy realized that all was not well when farm after farm was abandoned (above) or paid no taxes. So they did not wait for "an Act of God or an Act of Congress" to solve their problems for them. They set up a land-use committee, talked it over on the ground and at town meeting and decided on a town forest. Seavey A. Piper and John Bagley, town selectmen who got behind the project, are shown at left

improved road was miles away, and the thin layer of fertile soil, rough and poorly drained, was not good enough to grow paying crops. The hay market vanished. And taxes, as always, came due every year, income or no income.

Perhaps the house had been abandoned for years, its empty windows staring out on the bushes that began to cover the cleared fields. Or perhaps a fire ended its lonely days quickly and mercifully.

Now the descendants of the men who cleared these fields were putting the land back into forest. And forest it is very likely to be for many years.

The original town forest area was about 963 acres, made up of fourteen farms and lots ranging from seven to 152 acres. There was a considerable area of farm woodlots, and the usual amount of pasture and hayland.

Tangible returns—part of the pulpwood yield of the winter of 1943

Planted areas were clearly marked —the trees protected from fire

In that first year—1940—55,000 trees were planted. Employees of the town did this work, ably assisted by 4-H Club members and boys under supervision of the National Youth Administration. That same year the town crew peeled seventy-five cords of pulpwood and thinned and pruned thirty acres to improve the stand. Three boys and one man, representing four families, worked in the forest all summer and fall. Employment for local labor was one of the advantages foreseen when the forest was established; now some citizens object to using labor in the town forest when private employers need every available man.

The next year, 1941, the town forest showed a profit of $694, of which $63 was used for fire control and the purchase of two fire-fighting kits for the use of all residents of the town. Sales of pulpwood, plugwood and firewood amounted to $1,641. The work of planting was continued, and 52,000 more seedlings went into the abandoned fields.

By 1942, with America at war and the demand for forest products steadily increasing, the forest proved its value. In that year sales amounted to $2,652, wood on hand and other credits were valued at $2,239, and the estimated earnings at the close of the year amounted to $1,866. The planting program was continued, and 57,000 more young trees took their places on the Troy hills.

The town report for the year ending February 29, 1944, shows continued progress, aided by good markets but hindered by lack of labor. Receipts amounted to $2,695, including $2,267 from sale of wood products. Wood on hand and other items gave the forest project an additional credit of $2,503, for a total of $5,198. Cash expenses amounted to $2,431, including $106 used to buy and plant 10,000 more trees.

At the 1944 town meeting the people of Troy voted to create a special fund from earnings of the town forest. It is expected that the fund will amount to $4,000 by the close of this year. Right now the money is being invested in war bonds. After victory the money, in due time, will be used to help meet the cost of a new consolidated school.

But not all the benefits to the town of Troy have been financial, as represented by income from land otherwise tax delinquent. Local people have had work near home and relief clients have been provided with fuel.

Perhaps most important of all, in the long view, the people of Waldo County now have before them a good demonstration that selective cutting and proper management pay cash dividends. Extension Service representatives, who have long recognized the importance of what they call "spread of influence", know that the Troy example is having its effect on other towns.

Some of these have made small plantings, more have improved the management of woodland on town farms for the poor. Still more have not gone beyond the stage of watching the Troy experiment.

Everyone who is familiar with town government, especially in New England, knows that the type of action taken by the town of Troy requires more than a favorable vote at a town meeting. Some person or persons must take the idea from the "voted in favor" stage to the actual realization of the objective. Foremost among these men in Troy is Seavey A. Piper, dairy farmer and selectman for the past eighteen years. For the information of readers outside New England, selectmen are the administrative officers chosen by the people to conduct the general business of the town.

Although Piper is a dairyman his interest in forestry is well recognized. Principally because of that interest, and the sound policies he has advocated in Troy, he was named this year to the Agricultural Advisory Council of the University of Maine.

Another selectman, John Bagley, also was on hand when the first trees were planted and is actively interested in the project. He has served as selectman for twenty-five years.

The selectmen of Troy also want to give credit to two members of the Maine Extension Service, who have given practical advice and technical information from the beginning of the town forest project. These men are Philip Parsons, formerly county agent in that area, and A. D. Nutting, forestry specialist.

So much for the opening chapter in this story of a modern Troy and its forest. As the story unfolds with the years it should be one of encouragement for towns perplexed by the transition from idle farm land to productive woodland.

And so today in Troy, Maine, which bears the name of the ancient Greek city of legendary fame, where the hills were covered with oak and cypress, the people can lift their eyes to a forest that gives them a measure of security and satisfaction instead of the emptiness and waste of misused land.

Employment for local labor is one of the advantages foreseen in the creation of the forest—but initial plantings were made by employees of the town, ably assisted by members of the local 4-H Club and other youth groups

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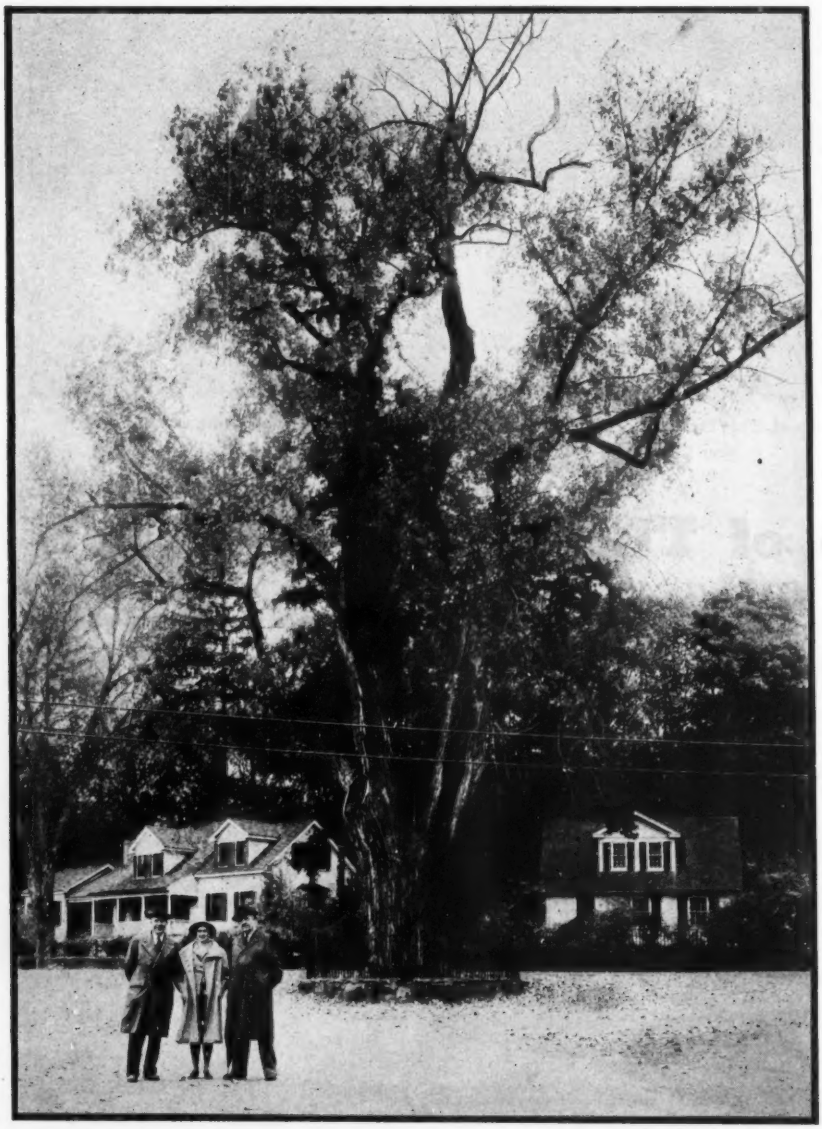
Tree Trails . . . Across America in Search of the Rare and Unusual

THE BALMVILLE TREE

By THOMAS C. DESMOND

THE tree pictured on this page, located at Balmville, near Newburgh, New York, is one of the best known and largest trees in New York State. On June 9, 1943, it was measured by New York State Director of Lands and Forests William G. Howard, New York State Superintendent of Forest Investigations Edward W. Littlefield, and the writer, and found to have a circumference of twenty-three feet two inches, measured four and a half feet above the ground; a height of ninety-nine feet; and a spread of eighty-six feet.



The old Balmville Tree, shown being inspected by, left to right, the author, State Senator Thomas C. Desmond, Mrs. Desmond, and Frederic A. Delano

President Franklin Delano Roosevelt, a tree-lover himself, has often admired this old tree and has known it well since his boyhood days, because it is located only a few hundred yards from the home of his uncle, Colonel Frederic A. Delano.

Locally the tree is known as a "Balm-of-Gilead" tree and it has given its name to the neighboring district which, for more than a hundred years, has been called "Balmville." At the request of the writer, however, specimens from the tree were examined in June, 1943, by Dr. Alfred Rehder, of the Arnold Arboretum, Dr. H. D. House, New York State Botanist, and Dr. A. B. Stout, of the New York Botanical Garden. On their joint authority it can be stated that the tree is definitely not *Populus candicans*, to which species modern usage restricts the name "Balm-of-Gilead," but the type species or some variety of *Populus deltoides*, called cottonwood.

The tree undoubtedly goes back to Revolutionary times and its large size and prominent location have resulted in frequent mention of it in historical records of the vicinity. Matthew Vassar is reputed to have slept under the tree in 1808, being then a poor and runaway boy who later acquired wealth and founded Vassar College.

In 1832 its circumference was recorded as fifteen feet, two inches, and in 1868 as nineteen feet, five inches. Ruttenber's history of Orange County, published in 1875, laments that the famous "tree is decaying now and will soon be gone." Friendly care of the tree, however, has belied the historian's prophecy. Since that 1875 prediction the tree has grown nearly four feet in circumference. It appears quite healthy today and likely to remain a beloved landmark for many years to come.

(In The American Forestry Association's Big Tree campaign, the champion Eastern Poplar or cottonwood tree, *Populus deltoides*, is recorded growing at historic Old Fort Kearney in Nebraska's State Parks. This giant, nearly thirty feet in circumference, standing approximately ninety feet in height, was nominated by Mr. V. W. Binderup of Minden, Nebraska, who writes "Now that Fort Kearney, established in 1848, is included in Nebraska's State Parks, the large cottonwood trees—all of a rather exceptional size—will be cared for and, no doubt, will go on for another one hundred years."—EDITOR.)

FMC HIGH PRESSURE FOG PROVED IN ACTUAL FIRE FIGHTING

PROPERTY ACTUALLY ON FIRE SAVED BY KENT COUNTY FIRE DEPT. $226,985.00

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BASEMENT FIRES

GASOLINE FIRES

TRUCK COLLISION FIRES

SMALLTOWN HOTEL FIRE

RURAL DWELLING FIRES

Fire Losses Reduced 'Way Below Average by FMC High-Pressure Fire Trucks in Kent County, Michigan

Look at the record! In the past year the Kent County organization made 201 rural runs with FMC High-Pressure Fog Fire Fighters. Property on fire saved — $226,985.00 — besides the thousands of dollars of exposed property saved. Total losses just 11 —only a fraction of the rural average.

The report shows, beyond the question of a doubt, that a volunteer fire organization—equipped with FMC High-Pressure Fog Fire Fighters—can handle all types of fires.

It's the 600 lb. gun pressure! FMC High Velocity and Finely Atomized Water! Just what you need to *blast, cool* and *smother* flame!

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In addition to our standard units—we build light, medium and heavy duty outfits to meet special requirements. Some for two-wheel trailers and light pick-up trucks—others for use behind crawlers. Capacities range from 8 GPM to 60 GPM—pressures from 500 to 1,000 lbs.

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Barns	Lumber Yards	Warehouses
Silos	Bakeries	Bowling Alleys
Farm Houses	Paint Booths	Tar Kettles
Residences	Blower Systems	Sawdust Piles
Boats	Quenching Tanks	Airplanes
Docks	Oil Fires	Airport Hangars
Transformers	Hotel Fires	Gas
Chicken Houses	Restaurants	Gasoline
Forest Fires	Night Clubs	Grass
Grain Fields	Gas Stations	and many others

Insist upon 600 lbs. gun pressure to get the multiple efficiency with small amount of water and no water damage.

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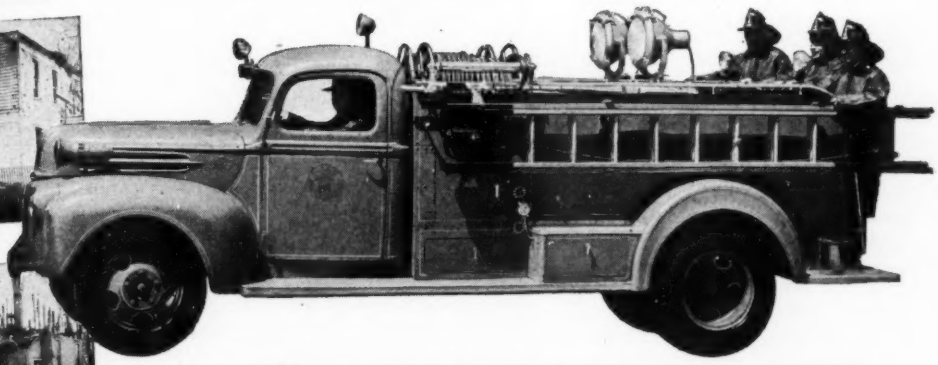

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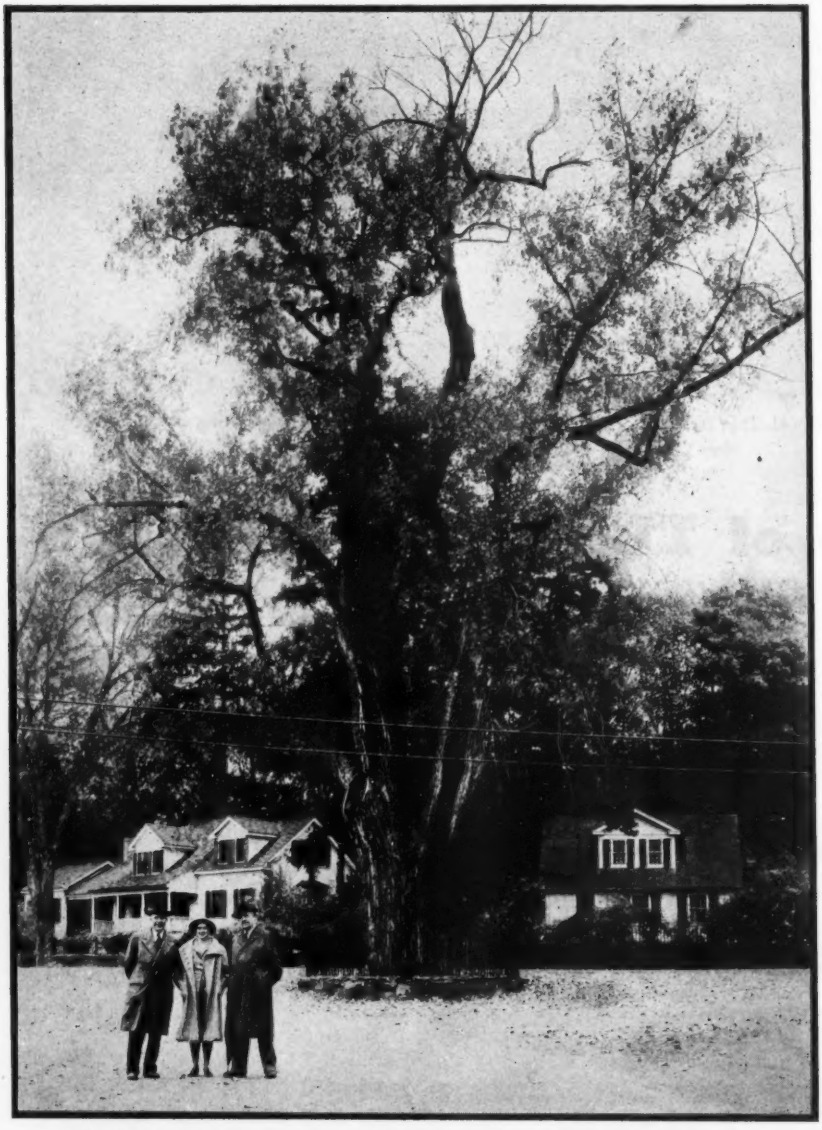

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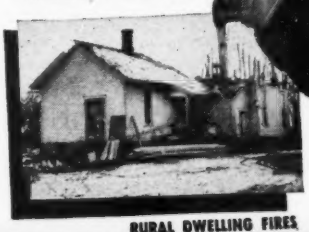

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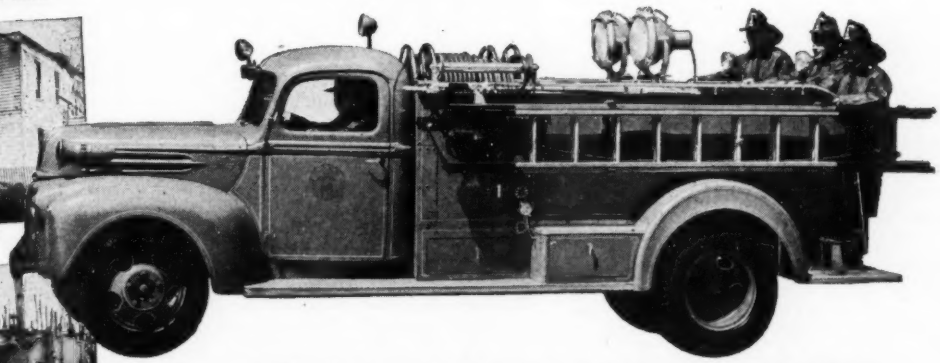

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CRASH BOATS OF WOOD

"BRING 'em back alive" might be the slogan of the Army Air Forces' new navy all-wood crash boats designed and equipped for the highly specialized work of rescuing Yank fliers forced down at sea.

"These boats will be used in all active theatres, Atlantic and Pacific," says Major Walter J. Boyne, chief, Marine Section, Emergency Rescue Branch. "Our sole purpose is to save Air Force personnel and get wounded men back to a base hospital in the quickest possible time. Of course, if it is practical to do so, we will try to salvage planes and equipment, too, but that is secondary. America can build planes, but the lives of her men are precious beyond price, and the AAF is overlooking no measure that will lessen the toll of war. The use of the crash boats will vary with circumstances; in some cases they will patrol, but their principal purpose is to follow air operations over water and to save lives."

Major Boyne, who had a hand in designing the crash boat, was engaged in the same type of work in peace.

This crash boat is of the same general type as the Navy's famed PT, but is longer, eighty-five feet overall, and with a great deal more head room. The beam is the same—twenty feet, three inches. It displaces 104,000 pounds, or fifty-two tons.

Twin screws, thirty-one inches in diameter, drive it along at speeds in excess of forty miles an hour. It is powered by two gasoline motors weighing 2,950 pounds apiece, which whip up 1,500 horsepower at 2,500 revolutions a minute. Two smaller, auxiliary motors take over for cruising at speeds of eight knots or slower.

Eight 480-gallon gasoline tanks give it a cruising range of 2,500 miles. In other words, it is capable of an Atlantic crossing under its own power.

The outer hull planking is Honduran mahogany; the inner hull, cedar. The watertight bulkheads are plywood, as are the decks, deck cabin, partitions and floors, for strength with lightness.

Although it is primarily an instrument of mercy, lacking the torpedoes and depth charges of the PT, it packs a punch, carrying the same fire power as the PT. A 20-mm. cannon is mounted aft and two sets of twin .50 calibre machine guns flank the bridge. The crew is armed with carbines and sub-machine guns.

An important feature is the remote electric hydraulic clutch control and other equipment which enable one man to handle the craft entirely from the bridge. Usually in a craft of this size the bridge directs the engine room by signal. Many airplane controls and instruments have been adapted.

It may also be steered from the chart room in the plywood cabin where the wheelsman is protected from the elements by plexi-glass windows like the nose of a bomber. A radio direction finder is located in this room, and the radio equipment is the latest and most complete.

Designed and equipped for the highly specialized work of rescuing Yank fliers forced down at sea is this new all-wood crash boat

The ship's company of thirteen is topped by a first lieutenant "skipper." The chief engineer rates second lieutenant, and warrant officers serve as mate and assistant engineer. The other nine making up the complement are all non-commissioned officers ranging from corporal to master sergeant. Each is a specialist in some chore unrelated to the physical operation of the boat. All are adept in first aid. Personnel for the boats is specially trained at the Emergency Rescue Operational Training Unit School at Gulfport, Mississippi.

The crew bunks together in the fo'castle and the two officers share a cabin which, if it is not as big as Madison Square Garden, is roomy enough. They eat in their quarters, a sliding port permitting service direct from the galley. The galley is unexpectedly large and well equipped for such a small vessel.

The sick bay aft, the easiest riding part of the boat, in charge of a staff sergeant surgical technician, will accommodate twenty patients comfortably. If the crew's quarters were taken over, thirty-three wounded men could be bedded. The sick bay is completely equipped with medical supplies, stretchers, crutches, splints, oxygen tanks, even a barber's kit.

A 1,000-watt searchlight on the bridge helps to locate downed planes at night, and rubber rafts are carried to be tossed to ditched fliers in passing to sustain them until they can be methodically picked up in turn. An A-frame on the stern is used to hold up a ditched plane until its crew can be removed or until a larger vessel can salvage it. A kit of wrecking tools is kept handy to extricate men trapped in a wrecked plane. Ample fire fighting apparatus is aboard for use when needed.

The officers and men who have ridden the crash boats praise their seaworthiness. There is no creaking of timbers in rough weather, they say, and the ship swims through heavy seas rather than bucking over them.

REFORESTATION OF PONDEROSA PINE

In the Klamath Plateau Region of Oregon, Weyerhaeuser is managing its forest lands in a manner that insures the continuous production of forest crops. The forests of that region are well suited to selective logging because they contain trees of many sizes and ages. Under such conditions it is possible to systematically remove the mature timber and leave the younger thrifty trees to grow up into a second crop and to naturally re-seed the land with trees for future crops. Removal of the old trees releases more light, more moisture and more food for the younger trees, causing their growth to be greatly accelerated.

Thus, while trees are harvested, the forest remains, and by the removal of the old trees, nature is assisted in doing her own job of reforestation. An intensive modern system of fire prevention and control is provided to safeguard the forest.

The quantity of timber that can be grown in the area, in a given period of years, will govern the quantity of timber that can be cut and processed at the sawmill in the same period of years. Through our treatment of timber as a crop, the growing and harvesting of timber in this area is on a permanent basis, just as permanent as the raising and harvesting of other crops produced from the soil.

WEYERHAEUSER

WEYERHAEUSER TIMBER CO. TIMBER IS A CROP FOREST PRODUCTS

Around the States . . .

Compton to Retire from NLMA

After more than twenty-five years as executive head of the National Lumber Manufacturers Association and other national forest industry organizations, Dr. Wilson M. Compton has announced his early retirement from the management

Dr. Wilson M. Compton

of these activities to accept the presidency of the State College of Washington, at Pullman.

"Far from ending my interest and activity in national forest affairs," Dr. Compton declared, "the presidency of this great institution in the center of the timber country of the Northwest will add to the opportunities for a constructive contribution to forest conservation, the permanent productive use of forest lands and the progress of forest industries. These are all of vital interest to the Pacific Northwest which, by reason of its abundant resources and expanding agriculture and industry at the new gateway to the Pacific and the Orient, is destined to play an increasingly important part in the progress of this country."

As a forest industry executive, Dr. Compton was one of the initiators of the National Committee on Wood Utilization in 1924, of the United States Timber Conservation Board in 1930, and of the National Forest Conservation Conference in 1934 and 1937. He was chairman of the National Industrial Council in 1938 and has served in many other industrial capacities.

Dr. Compton holds degrees of Ph.B., M.A., and LL.D. from the College of Wooster, in Ohio, as well as a Ph.D. degree from Princeton University and LL.B. from Hamilton College. In 1915, he was instructor in economics at Dartmouth College, and from 1934 to 1941 was professor of economics at George Washington University.

Hanson New Regional Forester

Percy D. Hanson, assistant regional forester in the California Region, has been named regional forester of the United States Forest Service Northern Region with headquarters at Missoula, Montana. He succeeds Evan W. Kelley, whose retirement after nearly forty years' service was announced early in October.

Mr. Hanson has been with the Forest Service continuously for eighteen years. A graduate of the University of California, he has served as ranger, assistant supervisor, supervisor and, since 1937,

Evan W. Kelley

assistant regional forester in charge of timber management and private forestry in California.

The retirement of Mr. Kelley brings to a close the career of one of the men who pioneered in setting up the national forest system around the turn of the century. Long regarded as one of the ablest administrators in the Service—as well as among the most colorful—his most recent large-scale achievement was organization of the Emergency Rubber Project at Salinas, California. He served as director of the project until July, 1943.

McDuffie Heads Redwood League

Duncan McDuffie of Berkeley, California, has been elected president of the Save-the-Redwoods League, succeeding Dr. John C. Merriam, who for twenty-four years has served as president of the League, of which he was a founder. Dr. Merriam, who is President Emeritus of the Carnegie Institution of Washington, will continue as a member of the Council. Resolutions were adopted expressing appreciation of his internationally recognized work in the field of conservation, and especially in saving the finest of the redwoods.

Mr. McDuffie, widely known civic leader and conservationist, has been chairman of the Board of Directors of the League for some time and a member of the Council for more than twenty years. He is president of the Sierra Club.

At the League's annual meeting, held in San Francisco, progress was reported in the program, in co-operation with the California State Park Commission, for the preservation of additional units in the Mill Creek Redwoods, in Del Norte County, and the Avenue of the Giants, north of High Rock near Dyerville, Humboldt County.

Acquisition of redwood forest lands now under option to the State Park Commission will be made in successive units over the years, as funds are raised. It is hoped that the State of California, as in the past, will supply half of the funds required. The Save-the-Redwoods League aims to raise the other half.

Duncan McDuffie

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- Balanced design

The new Buckeye Center Lift Dozer has them all. It's the dozer that can stay on the job, leveling, grading, back-filling, uprooting trees, clearing underbrush — rolling bigger yardage loads with minimum lost time for repairs and maintenance.

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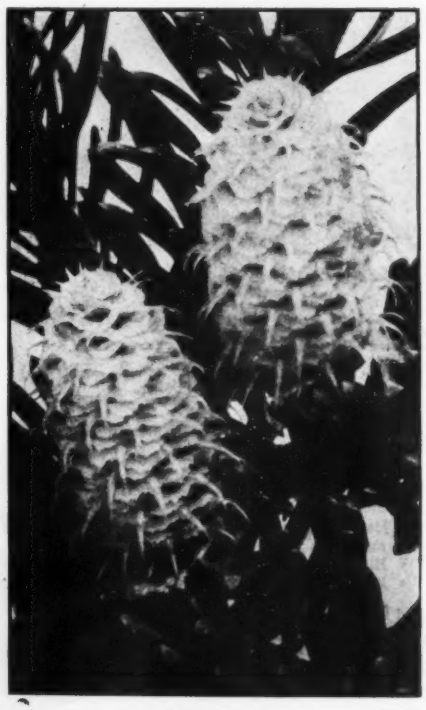
TREE QUIZ

NUMBER FOUR

By "MOOSEWOOD BILL"

1. On a rainy day in the northern woods what is the best and quickest way to get tinder for starting a fire?
2. What two pine trees, one in the Lake States and the other in Idaho, are so similar that if they were found in the same region they would probably not be considered separate species?
3. What is the purpose of cypress "knees"?
4. Why is "cedar" wood highly prized for planking boats?
5. Why are willows especially valuable to the beekeeper?
6. What is the American counterpart of the Chinese tree from which the black lacquer finish is produced?
7. If in the eastern United States you saw a native tree with double winged fruits but compound leaves what would it be?
8. How can you tell a "red oak" from a "white oak"?
9. Would a red mulberry be a good tree to plant outside your bedroom window?
10. Can you make coffee from the seeds of our native "coffee-tree"?



What Is It?

FOR ANSWERS—TURN TO PAGE 575

Du Pont Announces "Arboneeld"

"Arboneeld" is the name the Du Pont Company has given dimethylolurea, used in chemically transmuting wood into a much harder, stiffer, more durable substance (see "Super-Wood Has Arrived," by Harland Manchester, in the July issue).

In making this announcement, Dr. J. F. T. Berliner stated that in the transmutation of wood by the new Du Pont process, "Arboneeld" alone is not used, but rather a solution of it plus varying amounts of urea, depending on the effect desired. This process grew out of long-range studies by the Forest Products Laboratory, Madison, Wisconsin, the Du Pont Company and others.

Forest-Farmer Meetings

The Forest Farmers Association Cooperatives, twelve-state organization of timber growers of the South, will not hold a South-wide forestry conference this year. In compliance with requests by the Office of Defense Transportation, state meetings will be held instead.

These meetings, urging better care and more consideration for southern forest resources, will stress forest fire prevention and better farm forestry practice.

The first conference will be held October 25, at Nashville, Tennessee. This will be followed by meetings at Alexandria, Louisiana, November 1; Lufkin, Texas, November 3; Fordyce, Arkansas, November 7; Laurel, Mississippi, November 9; Mobile, Alabama, November 14; Macon, Georgia, November 16; Columbia, South Carolina, November 20; Raleigh, North Carolina, November 22; Jacksonville, Florida, November 28; and in Virginia on December 15.

The state directors of the Forest Farmers Association Cooperative will act as chairmen for the meetings.

Wood Utilization Conference

Wartime developments in the conversion of wood and their application to postwar economy was the central theme of a largely attended wood products conference called by the New York State College of Forestry at Syracuse, New York, on October 6 and 7. Speakers were drawn mainly from industry and included some of the most outstanding men representing companies in different fields of forest research and development.

Recent developments in wood cellulose and lignin plastics, for example, were presented by Dr. Floyd C. Peterson of the Dow Chemical Company; new developments in pulp and paper products were outlined by Lyman Beeman, general manager, St. Regis Paper Company; modern glues and their ap-

Smoke Jumper!

Lightning strikes — starts a forest fire. Deep in the woods, it might take days for fire-fighters to walk through brush and timber to the spot.

But look! A plane overhead drops a parachute. Another, another, and still others. "*Smoke jumpers*" have arrived to battle.

Summoned by radio, they are also equipped with radio, tiny 2-way sets for communicating with each other, and with the overhead plane. The latter's radio in turn can signal headquarters, or any field base or lookout tower—all equipped with 2-way radio.

After the war these systems will be greatly expanded, and RCA Emergency Communications equipment will again be available with advanced designs especially adapted to this field.

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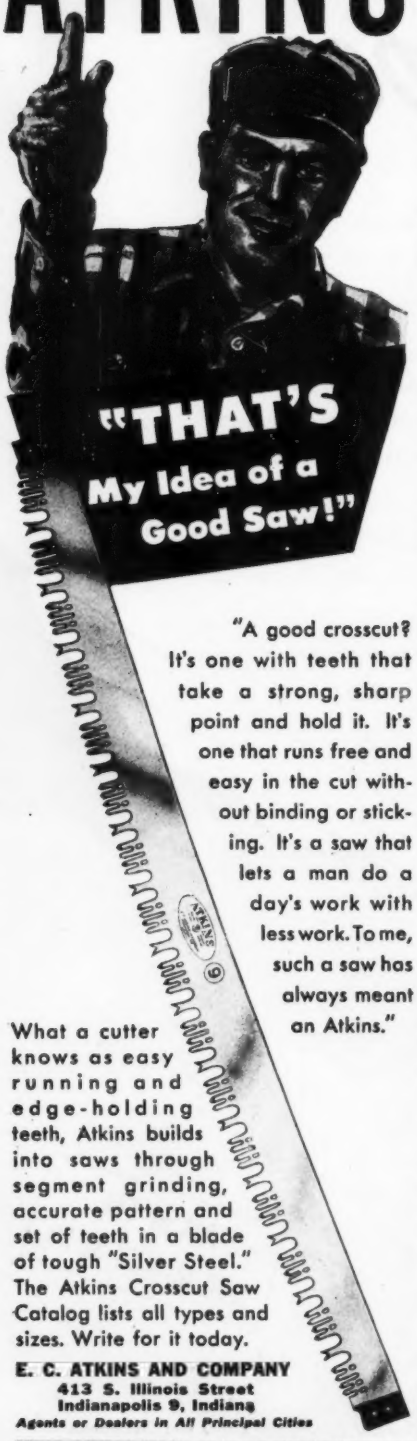

"A good crosscut? It's one with teeth that take a strong, sharp point and hold it. It's one that runs free and easy in the cut without binding or sticking. It's a saw that lets a man do a day's work with less work. To me, such a saw has always meant an Atkins."

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Silver Steel SAWS

plication to the utilization of wood were discussed by E. F. Leicester, president, Casein Company of America; modern developments in laminating wood for marine use were reviewed by C. D. Dosker, vice-president, Gambel Brothers; the application of transmuted wood as developed by E. I. DuPont de Nemours Company was discussed by Dr. J. F. T. Berliner of that company.

Other papers dealt with improved fire-resistant treatment of wood, the development of laminated structural timbers, problems of wood waste, and the use of high frequency heating as applicable to wood products.

A banquet, held the first evening of the conference, was featured by an address, "Looking Forward in Forest Education," by Dr. Joseph S. Illick, acting dean of the New York State College of Forestry and George W. Trayer, chief, Division of Forest Products, U. S. Forest Service, who spoke on "New Wood Products in our Future Economy."

The conference was highly significant not only in reflecting the remarkable advances that are being made through chemical and technological research in respect to wood, but in bringing out the widespread interest in new possibilities and developments in wood utilization. Among those attending were representatives from twenty-two states of the United States and three provinces of Canada.

Fire Warning Issued

The U. S. Forest Service early in October issued an appeal to woods workers, hunters and other forest users to exercise increased caution in the woods this fall. The fire situation, as the result of drought in some regions, plus large quantities of debris left in the forest from wartime logging operations, is generally acute.

Late reports indicate that southern California is experiencing one of its most severe fire years. Throughout the late summer fires were being fought on many fronts, one of the most damaging occurring in the Laguna region of the Cleveland National Forest, where 60,000 acres burned. This fire, said to be caused by a smoker, cost the region 43,000 man-hours and $20,000 in fire-fighting expense. All critical areas have been closed until the situation improves.

Bright spot so far is in the South where despite a prolonged dry period and slash left by logging operations, the number of fires reported so far this year is around thirty percent under the 1943 figure. However, it is pointed out, extreme caution during the usually severe fall fire season will be necessary if this gain is to be held.

New Virginia State Forester

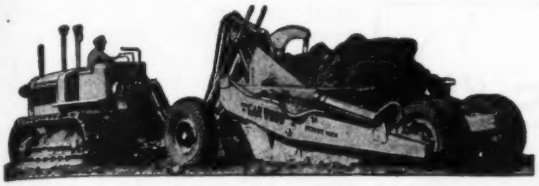
George W. Dean, assistant state forester for the past four years, has been appointed state forester of Virginia, according to an announcement by William A. Wright, chairman of the State Conservation Commission. He succeeds Fred E. Pederson, who died last June.

A native of Ohio, Mr. Dean is a graduate of the Pennsylvania State College of Forestry and the Yale Forest School, from which he received his master's degree. Prior to his association with the Virginia Forest Service in 1928, he served with the U. S. Forest Service in Virginia and Arkansas. His first assignment with the state was as district forester in the Tidewater region. After this, he was transferred to Charlottesville to head the division of forest management. In 1940, he was appointed assistant state forester in charge of forest protection.

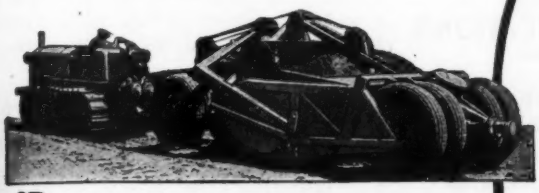
GEORGE W. DEAN

Dr. Earl C. Sherrard Dies

Dr. Earl Charles Sherrard, for the past fourteen years in charge of research in the chemistry of wood and its derived products at the U. S. Forest Products Laboratory, Madison, Wisconsin, died October 5 of a heart attack. Since 1917, Dr. Sherrard had been a chemist on the staff of the Laboratory. He is, perhaps, best known for his work in the development of processes for wood saccharification and the production of ethyl alcohol from wood.

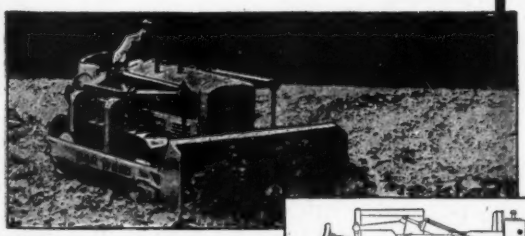


2A 4-wheel hydraulically operated Scrapers for earth moving, specifically constructed for fast digging, easy loading, accurate spreading.

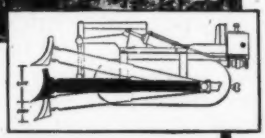


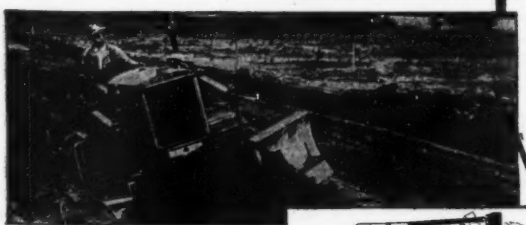
2B 4-wheel cable operated Scrapers for earth moving provide less power to load; greater clearance; flexibility for fast hauls; positive rolling ejection; precision spreading.

2C 2-wheel hydraulic Scrapers for low-cost, earth moving—dig, load, haul, back dump, make short turns.

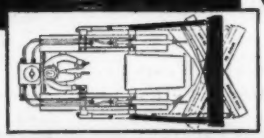


2D Bulldozer: Blade fixed for pushing loads ahead.





2E Roadbuilders: Blade set to push loads ahead, sidecast loads to left or right.

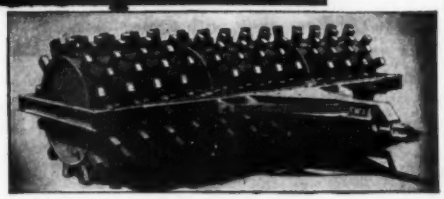


GAR WOOD Road Machinery

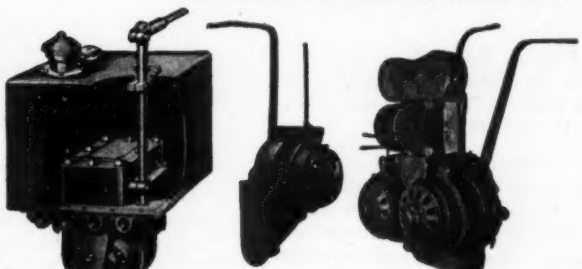
Gar Wood Industries, Inc., manufactures a complete line of heavy-duty, earth-moving machinery: two-wheel Hydraulic Scrapers in 3, 5, 6, and 8 cubic-yard capacities; four-wheel Hydraulic Scrapers in 8, 10, and 15 cubic-yard capacities; four-wheel Cable Scrapers in 11, 15, 20, and 25 cubic-yard capacities; Bulldozers; Roadbuilders; Tamping Rollers; Rippers. Accepted by leading contractors and governmental agencies throughout the world, as meeting all requirements for heavy earth-moving equipment.

Refer to picture number when ordering literature

2F Rippers rip compacted earth, shale, rock, roots, old pavements, old roads.



2G Sheep-foot Tamping Rollers built with interchangeable drums (single, double, triple).



2H Hydraulic Control Unit

2J Cable Control Single Drum.

2K Cable Control Double Drum

Hydraulic and Cable Control Units for operation of Scrapers, Bulldozers, Roadbuilders, Rippers, for heavy-duty service with track-type tractors.

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FORWARD TO THE LAND, by Elmer T. Peterson. Published by the University of Oklahoma Press, Norman, Oklahoma. 283 pages, illustrated. Price, $2.75.

Maintaining that the people of America, as a whole, are falsely adjusted to the soil, the author reports the expressions of humble, unposed citizens—typical of the millions who are closest to the land—the experiences he gained as a farm boy, and later from his associations on newspaper and magazine assignments. "Back to the land!" he says, must surrender to a new slogan, "Forward to a New Land Economy!" Needed, he says, is a reconstruction both urban and rural, away from the present tendencies of national socialism and toward "live-at-home-farming." This will result from American realization that our real wealth is in production.

FIELDBOOK OF NATIVE ILLINOIS SHRUBS, by Leo R. Tehon. Published by the Illinois Natural History Survey, Urbana, Illinois. 307 pages, illustrated. Price $1.25.

This is the third in a series of fieldbooks issued by the State of Illinois for the benefit of amateur naturalists and lovers of the outdoors who wish to study and familiarize themselves with their native flora and fauna. It covers 210 species and twenty-seven varieties, representing seventy-seven genera and forty-three families. The detailed line drawings were made by Miss Kathryn Sommerman, artist for the Survey, and in addition to these there are a number of beautiful full color plates. The author has been the botanist of the Survey since 1921.

DUNE BOY, by Edwin Way Teale. Published by Dodd, Mead and Company, New York, N. Y. 255 pages, illustrated. Price $3.00.

This is the story of a boy—an adventurous return to youth—set on the border of the dune country in Indiana, where the author spent much of his childhood. Beauty and stimulating freshness breeze through its pages, as well as humor, drama and a deep understanding of human nature. A book to treasure.

PICTURE BOOK OF INSECTS, by Albro T. Gaul. Published by Lothrop, Lee and Shepard Company, New York, N. Y. 41 pages, illustrated. Price $1.50.

Designed to teach young children to identify many of the most common insects found in city yards or parks, or in the open countryside, it will also serve to lessen their fears about them and undoubtedly inspire the start of many a juvenile insect collection.

A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

ANIMAL REVEILLE, by Richard Dempewolff. Published by Doubleday, Doran & Company, Garden City, New York. 272 pages, illustrated. Price, $3.00.

A stirring report of the devotion and courage of animal heroes on the battle fronts of the war. Dogs, mules, camels, pigeons and horses share the stage with elephants, llamas, oxen, cats, spiders and even canaries. An intensely interesting and human story.

THE FLOWER ENCYCLOPEDIA AND GARDENER'S GUIDE, by Albert E. Wilkinson. 524 pages, illustrated. Price 69 Cents, and

THE VEGETABLE ENCYCLOPEDIA AND GARDENER'S GUIDE, by Victor A. Tiedjens. 307 pages, illustrated. Price 69 Cents. Both published by the Garden City Publishing Company, as original publications of the New Home Library, New York, N. Y.

These garden encyclopedias, written basically for the practical use of laymen, comprise a complete reference authority. Written by garden experts and illustrated with over eight hundred drawings by Tabea Hoffman, these books will prove a boon to the constantly growing group of people interested today in gardening of all kinds and needing the information they contain.

WILDLIFE PORTFOLIO OF THE WESTERN NATIONAL PARKS, by Joseph S. Dixon. Published by the Government Printing Office and for sale by the Superintendent of Documents, Washington, D. C. 121 pages, illustrated. Price $1.25.

Almost all of the photographs presented by the National Park Service in this portfolio were made by the author, a pioneer of wildlife study, whose field investigations for more than thirty years have covered the Pacific Coast of North America between Point Barrow and Lower California. Here, and in the Western National Parks, his photographs were made. While not all-inclusive, they are truly representative of the mammals, birds and reptiles of the region and, together with the interesting brief life histories he has written to accompany them, will be a joy to the photographer of wildlife, whether novice or expert.

FOOD, WAR AND THE FUTURE, by E. Parmalee Prentice. Published by Harper & Brothers, New York. 164 pages, illustrated. Price, $2.50.

A discussion of the adequacy of the world's food supply in relation to increasing population pressures.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

A Simplified Method for Determining the Condition of White-tailed Deer Herds in Relation to Available Forage, by Barry C. Park and Besse B. Day. For. Serv., U.S.D.A. Tech. Bull. No. 840. Supt. of Docs., Wash., D. C. Price 15 cents.

Marketing Missouri Farm Timber Crops, by Ralph H. Peck, William C. Sechrist and C. Willard Leach. Bull. 460, Agr. Expt. Sta., Univ. of Missouri, Columbia, Mo.

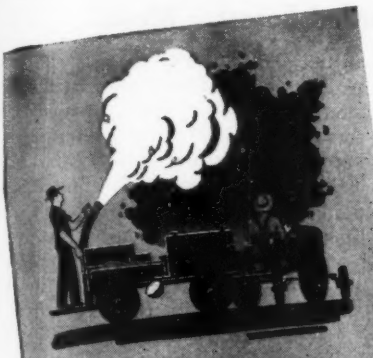
Louisiana Forest Resources and Industries, by R. K. Winters, G. B. Ward and I. F. Eldredge. Misc. Pub. No. 519, Forest Service, U.S.D.A., Supt. of Docs., Wash., D. C. Price 25 cents.

Land Utilization in the Northern Sierra Nevada, by David Weeks, A. E. Wieslander, H. R. Josephson and C. L. Hill. A cooperative study by the University of California and the Forest Service. Special publication of the Giannini Foundation of Agricultural Economics, Univ. of Calif., Berkeley, Calif.

Report on the Sedimentation Surveys of Little Rock Reservoir, Los Angeles County, Calif. By Carl B. Brown. Special Rep. No. 6, Soil Conservation Service, U.S.D.A., Wash., D. C.

Range and Livestock Production Practices in the Southwest. U. S. Dept. Agr. Misc. Pub. No. 529. Supt. of Docs., Wash., D. C. Price 10 cents.

Manuel des Clubs 4-H du Quebec. Bulletin No. 5, Association Forestiere Quebecoise Inc., 2 Cote d'Abraham, Quebec, Canada.



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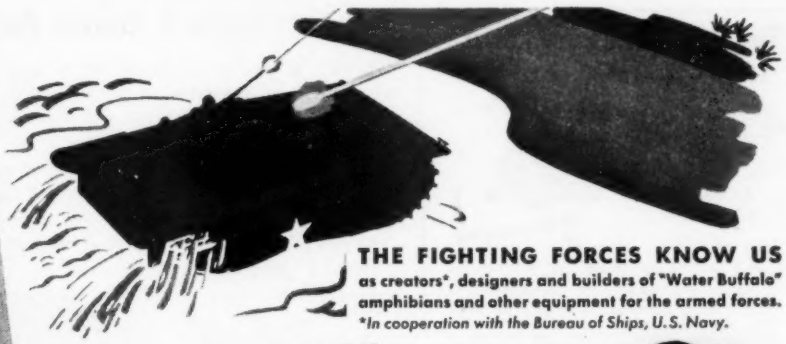

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as creators*, designers and builders of "Water Buffalo" amphibians and other equipment for the armed forces.
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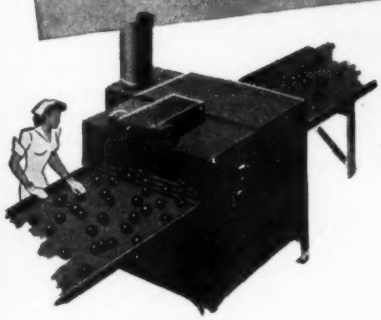

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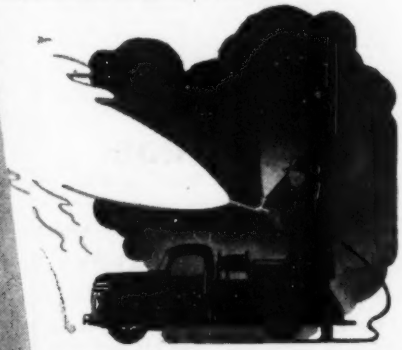

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Henry S. Graves Awarded Forestry Medal

HENRY S. Graves of New Haven, Connecticut, dean emeritus of the School of Forestry, Yale University, and former president of The American Forestry Association, was awarded the Sir William Schlich forestry medal for distinguished service to American forestry at a recent meeting of the Society of American Foresters at Washington, D. C.

This medal was named in honor of the late Sir William Schlich who established the forest service in India and was professor of forestry at Oxford University. In order to perpetuate his memory a fund was subscribed by his friends and admirers in the British Empire and the United States.

Henry S. Graves

The medal has been awarded only twice before in the United States. It was bestowed in 1935 on President Roosevelt, an honorary member of the Society of American Foresters, for his leadership in the forest conservation movement. In 1940, it was awarded Gifford Pinchot, first chief of the United States Forest Service.

A native of Ohio, Mr. Graves received his A.B. degree from Yale in 1892, and took postgraduate courses in forestry at Harvard and the University of Munich, in Germany. In 1898 he was appointed assistant chief of the United States Division of Forestry, in which capacity he served until 1900 when he resigned to become director of the newly organized Yale Forest School. In 1910 he was appointed chief forester of the United States, serving continuously, except for service in World War I, until 1920 when he returned to Yale as dean of the Forest School.

As a lieutenant colonel, Mr. Graves was sent to France in 1917 to plan for the work of the forest engineers. With the requirements of the AEF before him, he requested that forestry troops be rushed to France with all possible speed so that preparations might be made for the arrival of the combatant army. From that time until the arrival of the Tenth Engineers—known as the "Lumberjack" regiment—he was engaged in locating French timber tracts and negotiating for the purchase of lumber for army operations.

At the present time, Mr. Graves is chairman of the subcommittee on forestry and forest products of the United Nations Interim Commission on Food and Agriculture.

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11-44

Three Forks

(*From page* 535)

unusual beauty of this wild basin. Several I recall—Horace Kephart, famous author of the Appalachians; George Masa, that strange little Japanese photographer whose pictures helped to sell the Smoky Park idea; Dr. R. A. White, the famous obstetrician, who used to say there was never a place like Three Forks.

There were the hiking clubs from Knoxville and Asheville, dropping down from Mt. Guyot after a three-day trip along the crest of the range to camp by the pool at Three Forks. There were Boy Scouts—only the most hardy of whom were permitted to explore the basin. And there were Indians silently threading their way through the roaring gorge, catching fish where their white brothers couldn't. Yes, there was a time when citizens with a variety of interests could enjoy Three Forks. But that time has passed.

My friend, of course, was keenly disappointed. He, like many others, had found in the Three Forks basin the one place in the East that could be favorably compared to the best of the back country in the Rockies. Completely isolated, high up in the heart of the Smokies, it has all the attractions that go to make up a superb wilderness area. There are twenty miles of trout water, with other miles of feeder streams, flat stretches, rapids and falls. There is a summer-long floral display of wild flowers—a magnificent untouched forest growth. There is game—bear, turkey and grouse.

Expansive views are rare in heavy timber, but at the head of the basin is Mt. Guyot, second highest and most inaccessible peak in the park. A wooden tower built of materials gathered on the spot formerly stood on this peak and afforded an unsurpassed panoramic view. The tower has vanished, and there is no view from Mt. Guyot. The dim trail that led to it from Three Forks has been reclaimed by the wilderness.

My friend is dead now and won't see Three Forks again. But there are many who knew it before it was locked up who yearn for its wilderness beauty again; others, many others, who never fished its waters nor trod its dim trails, would find it a source of spiritual as well as physical growth.

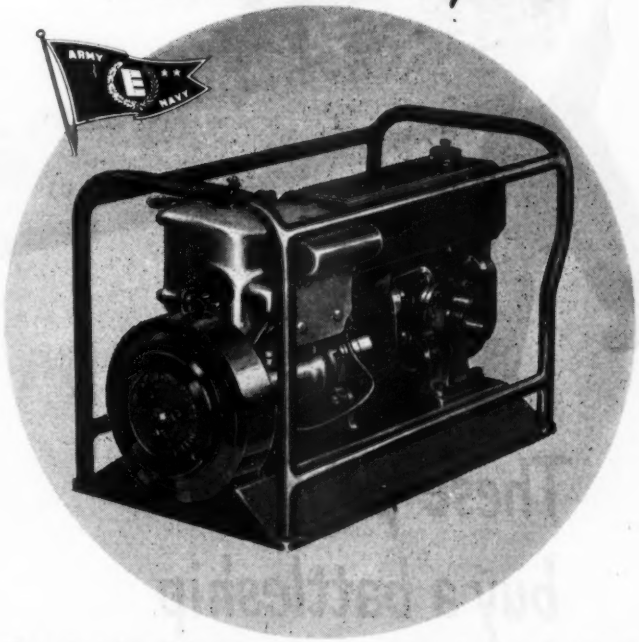
A trail through the area and a camp ground in the floor of the bowl would open this wonderland to scientists and to wilderness lovers in general. There is no other suitable camping spot of adequate size elsewhere in the spruce belt of the Great Smokies.

Will the Three Forks wilderness ever be available to the public again?

Pacific

HANDY BILLY

Portable Pumper



The principles of design and precision manufacture that have made the Pacific Handy Billy such an effective fire fighter for the Navy will, in due course, be available to protect forestry, industry and shipping against the ravages of fire.

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John works at an electronics plant on Long Island, and makes $85 a week. Almost 16% of it goes into War Bonds.

Mary has been driving rivets into the hide of one bomber after another out at an airplane plant on the West Coast. She makes $55 a week, and puts 14% of it into War Bonds.

John and Mary are typical of more than 27 million Americans on the Payroll Savings Plan who, every single month, put a half a BILLION dollars into War Bonds. That's enough to buy one of those hundred-million-dollar battleships every week, with enough money for an aircraft carrier and three or four cruisers left over.

In addition, John and Mary and the other people on the Payroll Plan have been among the biggest buyers of *extra* Bonds in every War Loan Drive.

When you come to figure out the total job that John and Mary have done, it's a little staggering.

They've made the Payroll Savings Plan the backbone of the whole War Bond-selling program.

They've helped keep prices down and lick inflation.

They've financed a good share of our war effort all by themselves, and they've tucked away billions of dollars in savings that are going to come in mighty handy for both them and their country later on.

When this war is finally won, and we start giving credit where credit is due, don't forget John and Mary. After the fighting men, they deserve a place right at the top of the list. They've earned it.

You've backed the attack—now speed the Victory!

AMERICAN FORESTS MAGAZINE

This is an official U.S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council

Old-Timers Work for Victory

HOW older workmen are helping in the task of producing lumber for America's war effort is exemplified at a number of mills in the Pacific Northwest, where men over seventy years of age are actively and regularly engaged at various production jobs.

Typical of many loyal old-timers who are sticking at their jobs "until this is over" is Axel Stuckrath, employed at the St. Paul & Tacoma Lumber Company's mill in Tacoma, Washington. Stuckrath, who is seventy-seven, has been employed by this company for forty-two years—and has missed but five working days since December, 1942.

No less than seven men over seventy are on the job at the Shevlin-Hixon Company's pine mill at Bend, Oregon. One is John H. Meister, seventy-six, logging superintendent, who has been with the company forty-two years. Before this he was employed in Minnesota. Nestor of them all is John A. Sager, eighty years old, a native of Pennsylvania. A yard construction laborer, Sager works regularly—has seen nineteen years of service with the company.

On the job every day in the surface dry shed is Edgar W. Lewis, seventy-six, who has been with the company since 1927. A native of Iowa, he is an old-time freighter of the Oregon country, and in the 1880's drove freight wagons to the John Day and Canyon City gold camps from The Dalles. Henry Schenk, seventy-seven, has been employed since 1925. He is a watchman. Hans P. Mosen, born in Norway in 1870, is a hog knife grinder. His total service is thirty-one years. He has one grandchild in the Navy and another in the Marine Corps.

Nathan T. Murry, seventy-seven, works regularly as a yard laborer. He has had eighteen years of service at the Bend mill—and while he is on the production line, one son and two grandsons serve in the Navy. Murray is from Missouri. Foreman for the watchmen is John F. Devereaux, seventy-one. A native of Michigan, his service in the Bend plant dates back to 1918. He has a grandson in the Naval Air Corps and a son-in-law in the Seabees.

It is a stimulating thought that while young men carry on the battle for freedom the old, who have long since earned the right to lay down their tools and rest, labor along for the same cause. They show an example that should prove humiliating to the chronic absentee, the job-jumper or the man who continues to do non-essential work simply because he realizes greater profits.

Typical of many loyal old-timers who are sticking to their jobs "until this is over," is Axel Stuckrath, seventy-seven, shown at his machine. He has missed but five working days since December, 1942

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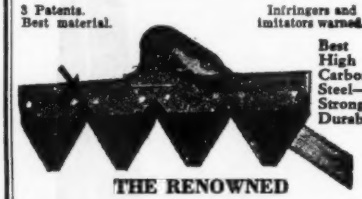

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Rough Water

(*From page* 529)

Early next morning we explored this narrow canyon and were rewarded by finding ourselves directly beneath a huge sandstone arch, a truly impressive natural bridge. As accurately as possible, Dr. Cutler and Nevills measured the arch, finding it to be 305 feet high and 293 feet from abutment to abutment. As Rainbow Natural Bridge is 309 feet high and 278 feet from abutment to abutment, this bridge stands as the second largest natural bridge known.

Returning to the river we proceeded on our way to Navajo Mountain, abode of the War God of the Navajo Indians, 10,409 feet high, at the base of which we found that incomparable rainbow in stone—Nonnezoshie Nadselid, the Arch of the Rainbow. Hiking the six miles from the river to the bridge, we veered off to the right about a mile above the bridge and started climbing up the cliffs and then down onto the top of the stone arch of Rainbow. This is an experience which I am glad to have undertaken, but do not greatly care to repeat. To most people Rainbow Bridge is a spiritual experience, as sacred to them as it is to the Navajos. Hence it seemed sacrilegious to stand on its altar top.

At Lees Ferry we went out to the rim for several days of picture-taking among the Navajos of the region and then down into Marble Canyon, so named because of the outcroppings of marble in the walls, which reared above the falling, broken wilderness of whirlpools and billows. No wonder the Indians hold this river in superstitious awe, claiming it is the entrance to the abode of the Great Spirit! It is unearthly in its awesome beauty.

At the junction of the Little Colorado River, a spot of such terrifying grandeur that I kept pinching myself to be sure I was awake, we came into the Grand Canyon section. Mostly the walls are higher and gloomier in these reaches, with stretches of a black granite that looks for all the world like anthracite coal. Strangely, in this lower region we came upon more good drinking water than we had had throughout the journey, solving more or less of a major problem. One does not care to drink the river water, which carries sixty percent silt.

We ran rapids all day. In most cases these did not retard, but rather hastened our progress and we soon arrived at

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Bright Angel, where we spent several days cleaning up and feasting at Phantom Ranch.

But always we must return to the river and speed on our way. The day after we left Bright Angel we had one of our worst mishaps. I was then an occupant of boat No. 2, manned by Dr. Cutler. The first boat negotiated this particular rapid successfully, but we whammed against a rock and were so securely pinned there, all in the space of about half a second, that it looked very much as though we would stay until either the boat overturned or was pounded to pieces. Either prospect would have probably ended fatally for the occupants. The others in the party immediately set about the rescue and worked their way as far out on the rocks along the shore as possible, and were finally successful in catching one of the ropes thrown to them.

Holding the rope taut, they motioned for me to come to them, and I was able to work my way to the other end of the boat, which stood on its gunwale on the rock, climb over its side and pull myself hand over hand across the swift waters. Our combined efforts finally served to pull the boat loose, and as it swept downstream, Nevills stationed below to catch any boat or member of the party so carried down by the current, rescued it. Del Reid then took the last boat safely through without passengers and worked his way up an eddy to rescue our marooned group. Another rapid behind us, and on we went!

As we came to Diamond Creek, where Major Powell's second expedition ended, we were ahead of schedule and lay over for a day at a fine camp spot, where we had trees, good water and, if we moved often enough, some shade to rest in.

As we neared Lake Mead above Boulder Dam we rescued two men who had come up the lake in a motor boat which had been swept away by a flood. Strangely, we found them at Separation Canyon, where three of Major Powell's party left him due to a serious shortage of food, succeeded in climbing out to the rim, only to be killed by the Indians. This same Separation Canyon now marks the separation of the Colorado River from the blue waters of Lake Mead.

The next day we heard a chug-chug in the distance and saw what we had long looked forward to—a government launch coming to tow our boats to Boulder Dam, for Lake Mead is 125 miles long and we did not crave rowing that stretch in the intense heat without the aid of rapids to speed us along. We landed at Boulder at midnight after a glorious ride across this largest man-made body of water, and it was not until the next morning that we came to a full realization of what this meant. We must now say good-bye to the finest group of people that could be met anywhere in this world. For sixty-five days we had lived through more experiences than come to average people in a lifetime, and these now-confirmed river-rats had stood one of the hardest of tests and come through showing they were thoroughbreds.

We had come through a wonderful dream, covering 1,163 miles of the roughest water in the world, an experience on a scale so grand that everything in the future, I fear, will be rendered commonplace. It had seemed at times that we were struggling against tremendous odds, never daring to look ahead of the actual moment. We had not in these two months added to our material possessions; we had merely by a supreme effort come to know the most violent of rivers as few can ever know it.

Amelia Earhart has said: "Beauty and adventure have a certain value of their own which can be weighed only on spiritual scales." Nothing could be more wonderful than the sheer, unbelievable beauty of these canyons; nothing more venturesome than running these swift rapids or our very day-to-day life in the wilderness. While memory lasts, I have a priceless possession in the recollection of these glorious, thrilling, dangerous days on rough water.

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Landscaping as a "Living Art"

(*From page* 549)

Here, indeed, was a new and rare philosophy toward nature — toward all that is natural—and when Mr. Jensen had finished speaking, his visitors recalled people they knew who, showing them the site for a future country home or summer cabin, said: "Of course, we're going to leave it just as it is. We like it wild." But on the next visit every fallen branch, every bit of earth-fragrant woodland debris would be cleared away; dead trees and fallen logs sawed and stacked into neat piles; forest growth in front of the cabin turned under and replaced by a smooth lawn. Sometimes even a trailing fern on a mossy ledge or decaying stump, has given way to a petunia or a geranium, "to give the place a touch of color."

"The Clearing" will never be like that. And maybe some day we will have eyes and minds to see beauty in our native plants and native scenes and we will learn to live in harmony with them, as does Jens Jensen.

Civilizing Milady's Furs

(*From page* 547)

out of reeds and weeds in the marshland and it extends about three feet above the waterline. In order to thrive in these surroundings, the marsh should have enough water so that when it freezes over the rat will have a foot or two of water between the ice and bottom in which to swim around and forage on marshy vegetation. This is much cheaper feed than the handout kind. The area Lamb took over did not have enough water but he remedied the situation by building dykes, dams and canals. He then stocked it and after the rat population increased sufficiently he allowed families on relief to trap the animals, giving them a percentage of the take. The rodent population there has increased to several hundred thousand. Many breeders in this country are now pursuing Lamb's method of raising muskrat in marsh areas and trapping. But the pen method of producing him for his pelt is decidedly not profitable, though money can be made by raising valuable breeding stock in pens.

One valuable fur animal that will bear watching is the chinchilla. This animal is a native of the Andes Mountains in South America. A few years ago some sportsmen in that section stocked it with foxes and, as a result, the sportsmen got their fox hunts but the foxes got most of the chinchillas. As these animals were nearing extinction, M. F. Chapman managed to rescue five in 1923 and used them as the foundation of the chinchilla farming industry in America. After a lot of bad luck he managed to increase his stock by 1939 to 2,000 on his ranch in the San Bernardino Mountains of California, with almost that many more on other ranches under his supervision.

Chinchilla fur is so rare the coats made from it have been selling at prices ranging from $10,000 to $100,000. Chapman, however, predicts that in ten more years the animals will have increased enough to bring the prices of coats down to an average of $10,000.

The raccoon is another fur specimen that can be easily grown under domestic conditions, but so far doesn't seem to be very profitable.

The American fur trade has become a $500,000,000-a-year industry and, except for a temporary interruption by the war, it has shown a healthy, though not spectacular, growth.

Like many other new developments, however, the industry has in times past been over-exploited, as was the case in the early twenties when some silver foxes brought up to $5,000 a pair. This wild and wooly speculation broke a number of plungers, but by 1927 fur-farming settled down to a common-sense basis. This could happen again under a pent-up demand that might be apparent after the war. But if sanity in the industry prevails when the bombs stop falling fur-farming should encounter a good future.

Biggest Lumber Buying Job

(*From page* 530)

purchases to date break down roughly into a ratio of seventy-five percent from producers and twenty-five percent from wholesalers.

At the outset of the program, retailers lacking priorities were unable to replenish stocks depleted in the first rush of war construction, yet such local stocks to meet ever-impending emergencies are an important factor in the lumber allocation problem. Accordingly, arrangements were made with thirty-eight lumber companies whereby CPA furnishes priorities to stock their yards on the agreement that the lumber be sold only as designated by CPA. From these local reserves 50,000,000 to 100,000,000 feet have been drawn and replaced each month. On more than one occasion local stocks prevented the war construc-

tion program from coming to an abrupt halt. With the waning of the construction program, this arrangement became unnecessary and was discontinued in June, 1943.

CPA has been repeatedly examined by the Patman Committee on Small Business, and it has passed those examinations with high grades. "We have no restrictions," Colonel Sherrill told the Patman group; "we will do business with anyone who can bring us the lumber." He credits the committee with contributing many practical and helpful suggestions which have been adopted.

ANSWERS
To Tree Quiz No. 4

[Illustration is of enlarged ovulate flowers of Fraser fir.]

1. The bark curls of yellow birch—or where permissible a piece of white birch bark which can often be found naturally shed. Both burn when wet.
2. Northern or eastern white pine, *Pinus strobus*, and western white pine, *Pinus monticola*. Another similar pair are jack pine and lodgepole pine.
3. Although some have supposed they are aerating organs the U. S. Forest Service found that baldcypress trees deprived of their knees made just as much growth as those which still had them. The best answer appears to be "We don't know."
4. It is light in weight, very durable, shrinks little, and when wet is extremely tough. These qualities are for such woods as arborvitae, *Thuja occidentalis* and *Thuja plicata*, which are not true cedars even though called such.
5. They furnish pollen, a necessity for feeding the young bee larvae early in the spring when brood rearing is in full swing.
6. The clear sap of poison sumac, when boiled, turns black and can be applied to wood giving it an appearance similar to that of Chinese lacquer. Anyone especially sensitive to poison ivy may be poisoned by handling lacquer ware.
7. Ash-leaved maple, or more commonly boxelder.
8. Although there are borderline cases, red oaks have bristle or spine-tipped leaves and white oaks do not.
9. Not if you do not want to be wakened at dawn every day during the fruiting season by a flock of squabbling, querulous birds out after their breakfast.
10. Yes—but whether you will want to drink it is another matter. Those who have tried it are not enthusiastic.

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THE FOREST RESOURCE APPRAISAL

FACT-FINDING SURVEY WILL DETERMINE WAR'S EFFECT ON FORESTS OF THE U. S.

TO PROVIDE A BASIS for informed postwar handling of one of the country's most important natural resources, The American Forestry Association has initiated a fact-finding survey to determine what effect the war is having upon the country's forests and forest lands and what will be their condition when the manifold problems of reconstruction are at hand.

The project is a broad cooperative undertaking in which all interested individuals and agencies are invited to join. Its overall objective is to have available at the war's end down-to-the-minute facts as to the forest situation, upon which public and industrial policies of forest conservation, management and land economy can be based.

Public-spirited citizens, industrialists and organizations alert to the need of forest conservation and development in postwar economy have made the survey possible by underwriting more than four-fifths of its estimated cost of $250,000. The Association is now engaged in raising the balance.

Let's make it a joint undertaking. We invite your help in this financing. Do it now with a cash contribution, a pledge, or, buy a Series F or G War Bond in the name of The American Forestry Association and mail it to us.

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WHO'S WHO
Among the Authors in this Issue

MILDRED E. BAKER (*Rough Water*), a native of Buffalo, N. Y., has for many years tried to quench an undying wanderlust by pack-tripping in the western wilderness of this country and Canada. Deeply interested in the Colorado, named by many "the world's most dangerous river," she joined the expedition traversing it —which is described so graphically here —being one of the first two women ever to complete the voyage down the entire 1,163 miles.

Mildred Baker

PAUL A. HERBERT (*Forestry in the Peace Plan for Germany*), head of the Department of Forestry at Michigan State College, East Lansing, Michigan, has just returned to his civilian post after two years in the U. S. Army attached to the Chief of Ordnance office, where he was charged with expediting the correct identification, packaging and shipment of ammunition overseas. He is considered an authority in forest economics and is a frequent contributor to professional magazines on that subject.

WILLIAM J. DUCHAINE (*Henry Ford —Lumberman*) is a free-lance writer, his favorite topics being conservation, and in the industrial field—principally lumbering. A newspaper man for over twenty years in the middle West, he is now managing editor of the Escanaba *Daily Press*, published in the lumbering region of Upper Michigan.

TOM ALEXANDER (*Three Forks—Lost Province of the Smokies*) — consulting forester and rancher, is a Georgia Forest School man. He has lived in the Southern Appalachians for over twenty years and worked on the original Smoky Mountain forest land appraisals when the National Park was created. A wilderness enthusiast, he has operated camps and ranches and handled trail trips for more than fifteen years.

IR. T. W. L. SCHELTEMA (*Holland's Man-Made Forests*) is a graduate of the Landbouwhoogeschool at Wageningen, Netherlands, Holland's agricultural college. Washington corespondent of the *Nieuwe Rotterdamsche Courant*, leading Dutch daily, from 1929 to 1939, he is now associated with the Library of Congress at Washington, D. C.

BRUCE MINER (*A Town Forest for Troy*), agricultural writer, is public relations representative of the Merrimack Farmers' Exchange in Concord, N. H., a farm cooperative.

A. F. MILLER (*Davey Crockett Fights Again,—With Trees*), native of Missouri, is an Iowa State forester, class of '24. Entering the U. S. Forest Service then, he has had a broad technical and administrative experience on the forests of the West and New England. Now Area Forester for the Texas Timber War Production Project, he lives at Houston.

ROSS L. HOLMAN (*Civilizing Milady's Furs*), former farmer and farm editor, writes from Nashville, Tennessee. Of late he has devoted his full time to free-lancing, contributing to more than one hundred agricultural, trade and general publications.

CLARA HUSSONG (*Landscaping as a "Living Art"*) is active in women's work in Wisconsin. She lectures, writes weekly nature columns for several state dailies and is a director of the Wisconsin Society for Ornithology. Her interest in Jens Jensen stems from *his* crusading for bigger state parks and forests, keeping natural beauty spots *natural*, beautifying roadsides — the things she, too, has believed in and worked for —and her recognition of the great and continuing influence he exerts as an inspirational teacher.

Clara Hussong

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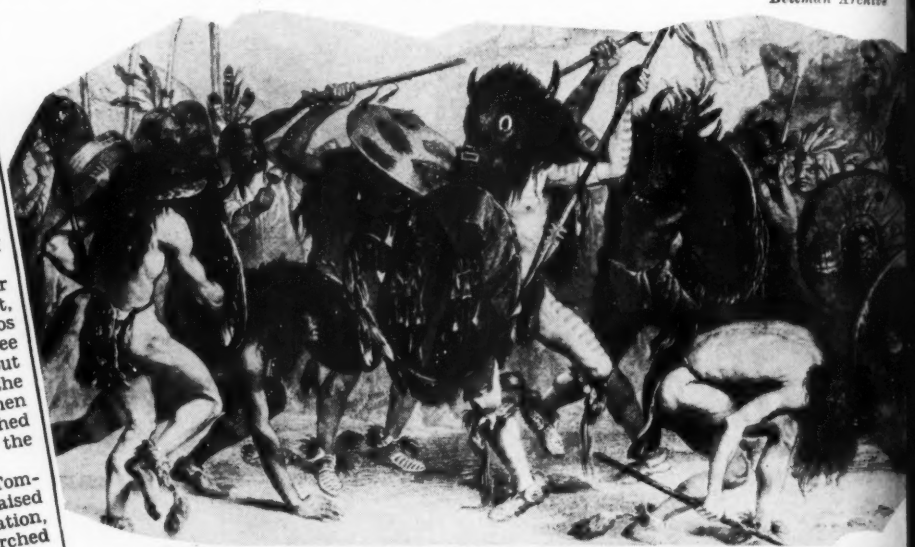


INDIAN DANCERS BRING RAIN; PUT OUT FOREST FIRE

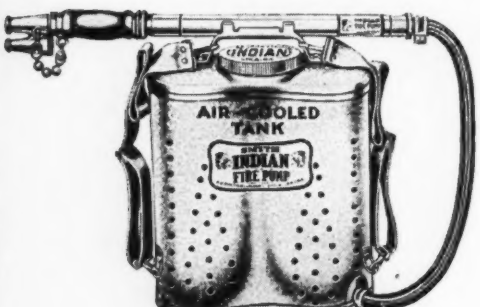
Taos, N. M.—(Special).—Thanks to the ingenuity of the Indian rain dancers, forest service officials now have the fire situation well in hand in New Mexico's 8½ million acres of timber lands.

When flames broke out the other day in the Carson National forest, officials called in a gang of Taos Indians to help quell it. After three days of sweltering work, without much headway being made, the medicine men drew the tribesmen aside, held a pow-pow, and reached a decision. A rain dance was the solution.

Out came the dance regalia. Tomtoms throbbed, the chanters raised their voices in singsong supplication, feet thudded against the parched earth. To the surprise of the white men, a downpour followed.

The not-so-surprised Indians packed up their regalia, along with their shovels and axes, and returned to their Taos pueblo. The fire was out.

Newspaper clipping which belongs in Ripley's "Believe It or Not" series. INDIAN pumps are a good deal more dependable than INDIAN dancers as a means of halting forest fires.



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Grotesque heads and hideous paint may sometimes bring rain from the heavens, but when there's a fire to fight put your faith in INDIAN FIRE PUMPS. Depend on the driving pressure stream to penetrate to the base of the flame and douse it completely. No wonder hundreds of foresters and fire chiefs have written us such enthusiastic letters about how much they prefer INDIANS. You will be surprised at the many uses for these great fire fighters.

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